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Tourism in the Slovenský Raj National Park – An Analysis of its Contribution to Sustainable Rural Development

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List of Abbreviations

B&B	Bed and Breakfast
CAC	Command-and-Control
CAP	Common Agricultural Policy
CEE	Central and Eastern Europe
DM	Deliberative Mapping
ELECTRE	Elimination et Choix Traduisant la Realite
EU	European Union
GMO	Genetically Modified Organism
IAD Framework	Institutional Analysis and Development Framework
IDARI	Integrated Development of Agriculture and Rural Institutions in Central and Eastern European Countries
IF-SAS	Institute for Forecasting, Slovak Academy of Sciences
IRD	Integrated Rural Development
Km	Kilometre
NAIADE	Novel Approach to Imprecise Assessment and Decision Environments
NC SR	National Council of the Slovak Republic
NGO	Non-governmental Organization
NP	National Park
MAUT	Multi-attribute Utility Theory
MC	Multi-Criteria
MCE	Multi-criteria Evaluation
MCM	Multi-criteria Mapping
PAN Parks	Protected Area Network of Parks
PMCE	Participative Multi-criteria Evaluation
PROMETHEE	Preference Ranking Organization Method for Enrichment Evaluation
PSI	the Policy Studies Institute
SES	Socio-ecological System
SKK	Slovak Crowns
SMCDA	Stakeholder Multi-criteria Decision Aid
SMCE	Social Multi-criteria Evaluation
SME	Small and Medium Enterprise
SOP	Sectoral Operational Program
SPRU	Science and Technology Policy Research
SR	the Slovak Republic
SRNAP	Slovenský Raj National Park

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1 Introduction

1.1 Objectives

The countries of Central and Eastern Europe (CEE) have undergone unprecedented changes since the fall of the Berlin Wall in 1989. This process of transition was not a 'simple' transformation of political and economic systems, but opened up many tensions, which proved difficult to resolve. For example, the environment-economy nexus has not been a priority on their development paths. Especially in the rural areas, due to complexity and path dependency, transferring the Western legal and administrative frameworks is not sufficient for achieving sustainable development. In order to analyse the transition process, this thesis focuses on institutional changes in the CEE countries, particularly the Slovak Republic, in respect to their impacts on the economic, social and ecological dimensions of rural areas, and highlights the emerging conflicts between rural/tourism development and biodiversity protection.

Rural areas are complex systems operating at the interface of social and ecological systems (SES). Any analysis of such systems must be an interdisciplinary process aiming at the understanding of interdependencies between their components. An SES has economic, ecological and social dimensions and hence its observation and appraisal require interdisciplinary understanding and multi-scale analysis. SESs in themselves and even more so given their interconnectivity are complex, which makes disciplinary compartmentalization an almost impossible effort.

The analysis of sustainable development of SES (in this case rural areas of CEE countries) within the transition process requires an interdisciplinary approach and improved understanding of the causal interrelations, interlinkages and relationship between the subsystems and dynamics of the system behaviour (Gallopín et al., 2001; Rammel et al., 2007).

The complex process of transition in the CEE, especially in rural areas, reflects the vital need for an integrated, interdisciplinary and co-evolutionary approach. Starting from the situation characterized by rapid institutional changes in the CEE countries, this thesis aims to explore the process of institution building and its effect on the sustainable development of the area of the Slovenský raj

National Park. To follow this aim, our purpose is to address following research question: Which types of emergent institutions act as driving forces for and barriers to the rural development (especially rural tourism) in and around the Slovenský Raj National Park.

To account for this challenge and complex issue, this study chose a combination of methods, namely institutional analysis (to understand past and the current situation), scenario planning, and multi-criteria appraisal and their synthesis with a participatory approach (to explore paths for the future development). In order to focus on all possible institutional driving forces and barriers for sustainable development we need to explore past, current situation and also possible future.

Before exploring future development options, this thesis first analyses past and current conditions for institution building. Transition is to some degree a continuation of the past, and the past is thus crucial for the future evolution. Since the past has generated some lock-ins and favours certain pathways over others, the transition process in CEE countries needs to account for the influence of the past on the physical infrastructure, institutions and people's attitudes. Looking into the past, helps to understand how the present came about and how the future might develop. Such ex-post institutional analysis, with a focus to understand the influence of the past, helps to emphasize the importance of the evolution of institutions for sustainable development of rural areas. After the fall of the communist regime the implementation of new institutions was influenced by past ideologies. In order to increase the durability and stability of newly imposed institutions, it was necessary to change attitudes and practices. In the CEE countries, the complacent attitude of actors to environmental problems as part of managing the development of rural areas can be understood in connection with the previous regime, where sustainability or environmental issues were not given high priority¹ and thus environmental protection is not embedded yet as practice.

¹ The environmental protection was primarily shaped by an ideological legacy, rooted in Marxist value theory, which aimed to manifest the principles of socialism. Marxist value theory considered labour (power) to be the source of all value, and the environment, therefore, had no intrinsic value aside from the serving of human needs. As an 'unproductive and inefficient' activity, environmental protection had a low priority even within protected areas. Very often, environmental protection institutions existed only formally and the absence of the market allowed states to be the only regulatory body, often resulting in a *de facto* open access resource regime.

Although due to the borders having been closed to mass tourism during the communist regime the biodiversity of habitats and species is high, the current growing influence of tourist inflow without considering its effect can lead to their destruction and creates problems in those unique ecological systems and consequently also in social systems. The physical effects of such disturbances may accumulate, but unless and until a trigger occurs which stimulates a major shift in collective perceptions, it will not lead to changes in policy, institutional arrangements or behaviour (Hadfield and Seaton, 1999). The trigger is missing so far and the phenomenon has not become an 'issue' and thus has not stimulated the debate for policy and institutional change. Thus it is very important to focus on the capacity of the social and ecological systems to deal with slow, sometimes imperceptible changes in the circumstances of the transition countries. Such capacity can be understood as robustness. Robustness is important for an area to cope with the disturbance and to be able to adapt without allowing the system to collapse or change its functions. The system cannot stay rigid but has to adapt to these changing conditions without its social and ecological functions being transformed. In order to identify the robustness of a system, it is necessary to explore institutional settings that determine the incentives and behaviour of society, its interaction with environment, its consequences and feedbacks. By highlighting current institutional settings we can explore vulnerabilities that affect a capacity of the system to adapt in response to slow disturbances.

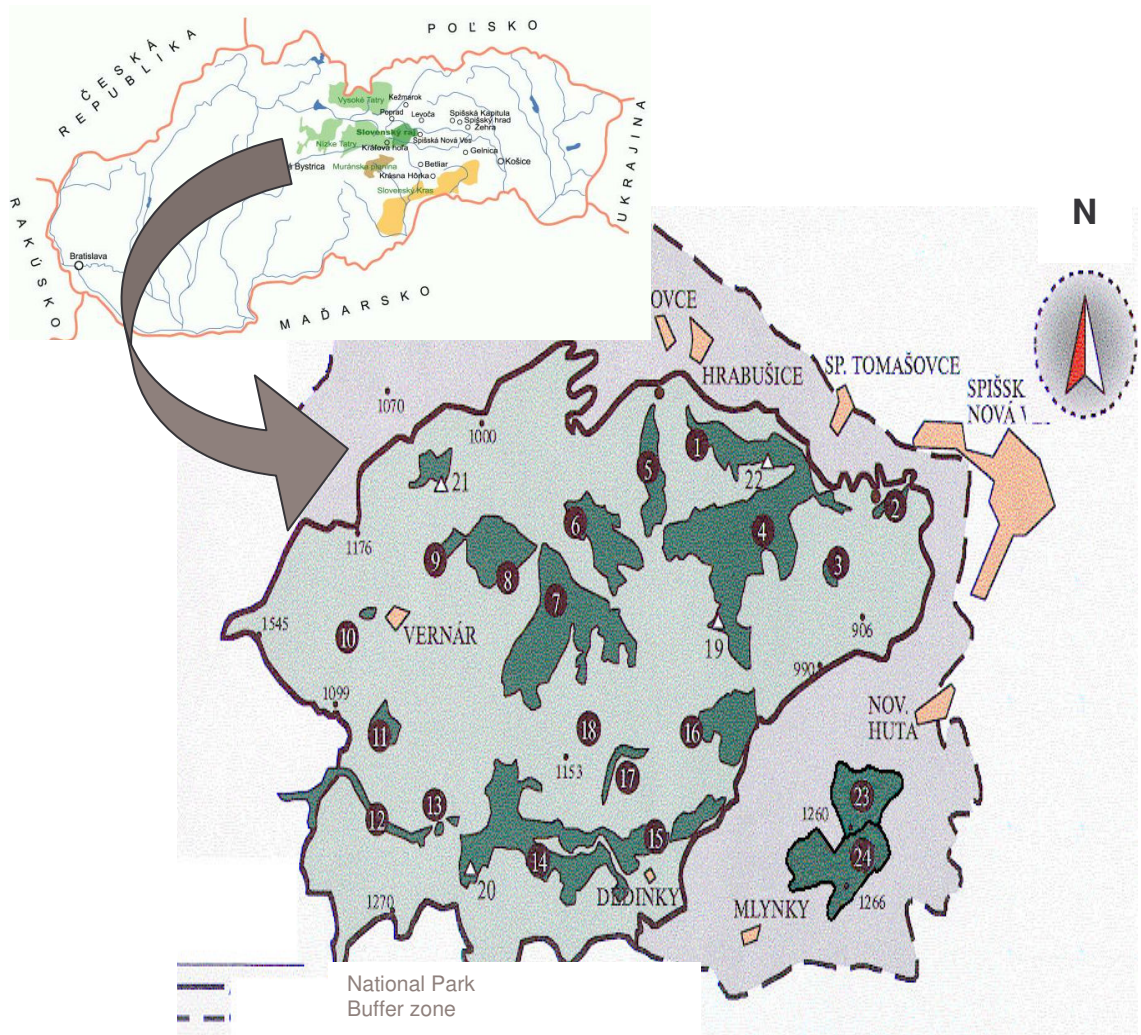
Analysing past conditions, the importance of institutional interaction and highlighting current institutional vulnerabilities for disturbances increases our ability to maintain the options for sustainable futures in order to contribute to the sustainable development. It is a major challenge, however, to understand the complexity of possible futures and to identify gaps, inconsistencies, dilemmas, uncertainties and indeterminacies of different possible paths. The task would then be to try to find out what changes in the current institutional settings could make the rural development options more sustainable and more feasible. The current problems of development of the rural areas in the Slovak Republic, particularly within its National Parks, are twofold. Firstly, there is a complex and heterogeneous interest and value conflict concerning future development strategies, which have hitherto seen no effective dialogue. Hence an effective

structuring of the tourism development problems is an essential task, so that eventual negotiations among actors can have a better chance of a positive outcome. Secondly, problem-solving is one-dimensional (mostly economic and short-term benefit), without taking into account the other dimensions affecting the quality of our lives and those of future generations. When there is an irreducible conflict between non-equivalent perspectives and interests of different groups when deciding about future development options, multiple perspectives have to be taken into account by way of inclusion of various stakeholders in participatory processes. In such cases, the need for such techniques of analysis that take into account a pluralistic approach, the multidimensional nature of reality, reflexivity, transparency and greater accessibility to wider participation is particularly evident. Combining a scenario building approach with a deliberative multi-criteria technique can provide a transparent, accessible, and open-ended methodological framework for exploring necessary changes in the institutional arrangements and appraising different paths for protecting natural values of the Slovakian National Parks and for generating economic and social benefits for the region and illustrates how the region can move towards sustainable rural development in protected areas. By exploring the process of institutional building from different time perspectives this thesis identifies possible institutional driving forces and barriers with regard to sustainable rural development in the study area.

1.2 The Study Area

The interest area of this thesis is the Slovenský Raj National Park (SRNAP). The Slovenský Raj (Slovakian Paradise) National Park belongs among the most valuable areas of the Western Carpathians. As such, it is exceptionally rich in both species and habitat diversity. It is situated in the eastern part of Slovakia (Map 1-1) (48°54'N - 20°20'E), in a karst area with more than 200 caves.

Map 1-1: Map of Slovakia showing The Slovenský Raj National Park



It covers 19,760 ha and includes a number of nature reserves, some protected sites and natural monuments. Originally, the whole area of the National Park was a large compact territory later divided by rivers (the Hornad, Hnilec) and creeks (the Veľký Sokol, Suchá Belá, Biely potok) into several larger and smaller plateaux (Glac, Geravy) and deep canyons. On the plateaux, there is a broad spectrum of karst formations – especially sinks, chasms, underground caves and holes. The most significant is the Stratena cave system, which includes the Stratena cave itself (18.5 km), being the longest cave in Slovakia, the Psie diery cave and the Dobšinská Ice Cave (UNESCO World Natural Heritage Site). Temperature inversion, typical in the gorges, creates flora and fauna community inversion, which in turn creates a vast degree of biodiversity. Ninety percent of the Park is covered by forest, a complex of deciduous and coniferous trees. The

vegetation inversion typical for such natural conditions provides a habitat for relict karst pine and spruce, which grow on the cliffs and stone steps. In the rocky habitats there are populations of endemic annexed pulsatilla species (*Pulsatilla slavica* and *P. subslavica*), important nationally. Very unique are the grassland habitats (including orchid sites) (LIFE, 2004). The Park is home to a stable population of the Brown Bear (*Ursus arctos*), Otters (*Lutra lutra*), Wolf (*Canis lupus*), Lynx (*Lynx lynx*), Golden Eagle (*Aquila chrysaetos*), Peregrine Falcon (*Falco peregrinus*), and many bat species (*Myotis myotis*, *Myotis emarginatus* and *Rhinolophus hipposideros*).

On the one hand, the existence of the Slovenský Raj National Park represents an obstacle to a strong economic development in the region, but on the other hand it brings in important income from tourism (LIFE, 2004). Tourism as such in the area of the Slovenský Raj goes back to the nineteenth century. The first tourists in the SRNAP used paths built originally for mining, coal industry and forestry purposes. Various tourist clubs and associations have played a major role in the discovery and exploration of the area. In the early 1920's they started to reconstruct old wooden ladders and replaced them with iron ladders, built new bridges and steps to facilitate passage through the gorges (Petrík, 2006). Since 1950 the number of tourists has been increasing slowly. The incessant increase in the numbers of visitors has become the most serious negative factor for nature conservation in the SRNAP, especially concerning visits to the endangered aquatic systems and valleys in the northern part of the Park, formed by steep and deep canyons with access restricted to one-way tourist paths constructed of wooden and iron steps and ladders.

1.3 Structure of the Work

The structure of this thesis is as follows: In the context of the study area of the Slovenský Raj National Park, section 2 looks into the process of institutional change in the CEE from the ex-post analysis. The ex-post institutional analysis helps to understand how the present came about and how the future might develop. In order to understand the process of the institutional change, this section highlights the importance and necessity of assuming the existence of previous institutions and the influence of this interaction on the durability and stability of new institutional forms. In search for driving forces behind and

barriers to sustainable development, Section 3 focuses on the current capacity of the study area to deal with slow and imperceptible changes in the circumstances of the transition countries. Special attention is paid to the concept of robustness, which plays an important role in the context of CEE, more precisely in the area of the SRNAP, where the economic and political transition process has been followed by an increased tourist inflow to the National Park and consequent slow environmental changes, without adequate strategies and considerable societal response. Analysing current situation of the study area helps to identify potential problems and understand what changes and innovation in the current conditions are needed to ensure sustainable development. By applying multi-criteria evaluation, section 4 explores different options with regard to tourism development in the study area and the necessary changes in the institutional arrangements in relation to these options. By analysing the process of institutional building from different time perspectives section 5 (conclusions) illustrates the driving forces behind and barriers of the study area towards robust and sustainable rural development and describes some policy implications.

2 Evolution of Sustainable Tourism Institutions in the Context of the Transition Process in Slovakia

2.1 Introduction

The evolution of institutions is important for the sustainable development of rural areas. Institutions shape behaviours and govern how conflicts are dealt with. Thus they impact on the economic, ecological and social dimensions of rural areas and play an important role in the emerging conflicts between rural/tourism development and biodiversity protection in the Slovak Republic. Institutional change in the Central and Eastern European countries was faster and more comprehensive than in other European countries in the recent history, which makes them an intriguing study objects. Most institutions cannot be simply implemented; instead, they evolve as a response to social and physical characteristics, and it is a slow process (Gatzweiler and Hagedorn, 2002). According to Bromley (2006), it is a continual process of adaptation to new settings and circumstances. The situation characterized by rapid institutional change, and the consequent increase in social conflicts and overexploitation of natural resources affect sustainability of rural areas in the long run.

In order to answer the main research question of the thesis, this chapter looks into the unprecedented political and economical changes in the CEE countries, particularly changes in property rights and the consequent evolution of formal and informal institutions surrounding these changes, and its effect (positive or negative) on the sustainable development and tourism activities in the biodiversity-rich area of the Slovenský Raj National Park.

Understanding the conditions for successful sustainable development is becoming an increasing central issue in economics and social science. We want to find out how the transition process affects the evolution of institutions, how the institution-building process affects the sustainable development of the rural areas and moreover how to increase the durability and stability of newly imposed institutions? All these questions are important, and not all have yet received a convincing answer. We want to develop an interdisciplinary framework for mapping co-evolutionary interactions between institutions and the social and ecological system on the example of rural areas that would allow us to tackle these questions. For this purpose, we use as a basis the Institutional

Analysis and Development (IAD) Framework, developed by Ostrom and her team at the Workshop in Political Theory and Policy Analysis at Indiana University and applied over several decades to analyze a diversity of empirical settings (Ostrom, 1986; Oakerson, 1992; Schlager and Ostrom, 1992; Ostrom et al., 1994; Gibson et al., 2000; Ostrom, 2005), in combination with the co-evolutionary framework of SES developed by Gatzweiler and Hagedorn (2002). We draw on institutional, ecological and evolutionary economics. Such a combination will help us to capture the important variables that we should analyze when examining interactions between institutions and ecological and social systems.

This chapter first introduces the concept of socio-ecological systems and the importance of institutions for such systems (Section 2.2). Section 2.3 summarizes various definitions of institutions and outlines the implications of grammar of the institutions in order to understand their evolution. Section 2.4 discusses the notion of the importance of pre-existing institutions in the context of the transition process. Section 2.5 presents a short overview of different theories of institutional change. Section 2.6 presents a research framework to examine the co-evolutionary interactions between institutions and socio-ecological systems. Section 2.7 highlights the main problems and describes the study area and the methods employed for data collection. Section 2.8 discusses the results and summarizes the main implications of the various theories of institutional change in the context of the study area. Section 2.9 presents the conclusions.

2.2 Theoretical Framework

2.2.1 Socio-ecological System and Institutions for Sustainability

Our ultimate objective is to contribute to the efforts towards sustainability, that is, the use of environment and resources to meet the needs of the present without compromising the ability of future generations to meet their own needs. According to Berkes et al. (2003) sustainability is a process, rather than an end product: a dynamic process that requires adaptive capacity for societies to deal with changes. Sustainability as such is not a fixed ideal but an evolutionary process (Cary 1998). Sustainable systems are systems that persist, but also evolve and change (Holling, 2003 in Berkes et al., 2003). Rammel et al. (2007)

point out that a co-evolutionary approach is necessary to understand such complex systems and to enhance sustainability in the long run.

Humanity is the major force in global change and shapes ecosystem dynamics from local environments to the biosphere as a whole. At the same time, human societies and globally interconnected economies rely on ecosystem services and support (Folke, 2006). Sustainability thus implies maintaining the capacity of ecological systems to support social and economic systems. It is a special attribute of sustainability that both the systems are interlinked and therefore need to sustain each other in order to sustain themselves (Gatzweiler and Hagedorn, 2002). Social systems are interdependent systems of actors tending to form co-operative and interdependent relationships with one another (Anderies et al., 2004), which include those dealing with governance, as in property rights and access to the resources (Berkes et al., 2003). Ecological systems (ecosystems) refer to self-regulating and interdependent organisms or biological units interacting with one another and with their environment (Berkes et al., 2003; Anderies et al., 2004). To emphasize the integrated concept of humans-in-nature, Berkes and Folke (1998) use the term *socio-ecological system (SES)*. A socio-ecological system is defined as a system that includes societal (human) and ecological (biophysical) subsystems in mutual interactions (Gallopín, 1991), where economic systems are embedded in society and both of them are embedded in the biophysical sphere. The human dependence on the capacity of ecosystems to generate essential services, and the vast importance of ecological feedbacks for societal development suggest that social and ecological systems are not merely linked but rather interconnected (Galaz et al., 2006). Why do we have to address the concept of socio-ecological systems not just social and/or ecological systems? Folke (2006) emphasizes that most studies on the social dimension of resource and environmental management have focused on the process with the social dimension only and assuming that if the social system is well organized institutionally it will also manage the environmental resource in a sustainable fashion. A human society may show great ability to cope with change and adapt if analyzed only through the social lens, but such adaptation may be at the expense of change in the capacity of ecosystems to sustain the adaptation (ibid). In fact, such adaptation can push ecosystems close to their thresholds or into alternative states with lower

capacity to generate ecosystem services (Galaz et al., 2006). Similarly, focusing on the ecological side alone as a basis for decision-making for sustainability leads to conclusions that are too narrow and flawed (Folke 2006; Galaz et al., 2006). Basing policy recommendations on ecological knowledge alone without recognizing the fundamental impact of social actors and institutions on ecological systems, is a simplistic approach that fails to appreciate the complexity of governance processes (Adams et al., 2003) and the social features that enable management of dynamic ecosystems (Folke et al., 2005). The matching of dynamics between ecosystems and ongoing social-political processes, such as governance, is known as the problem of fit² (Galaz et al., 2006).

The need to investigate whole SES arises from increasingly recognised evidence that understanding and anticipating the behaviour of the SES requires simultaneously taking into account both components, meaning that SES are non-decomposable (Gallopín, 2006), or in other words, the delineation between social and ecological systems is artificial and arbitrary (Folke, 2006). Using the concept of SES is especially important in order to understand the dynamics of both the social and ecological components and their mutual interactions.

We use the term SES as applied by Anderies et al. (2004), who refer to the subset of social systems in which some of the interdependent relationships among humans are mediated through interactions with biophysical and non-human biological units.

2.2.2 Institutions as Linkages of SES

The interactions regulating the relationship among individuals and between social and ecological systems are various types of institutions; they represent essential linkages between social and ecological systems. Our understanding of sustainability refers to ways in which social and ecological systems interact by means of their institutions. Institutions of sustainability therefore relate to environmental assets in a fashion that secure their capacity to support development for a long time into the future (Costanza et al., 2001; Folke, 2006).

² The FIT is function of the match between the characteristics of social norms (institutions) and biogeographical systems with which they interact (Young, 2002).

Both social and ecological systems are embedded and intrinsically interwoven. This is particularly true for rural areas. Rural areas are complex systems operated at the interface of social and ecological systems. Historically, *rural development* was dominated by the aim to increase agricultural productivity and to restrain and maintain control over ecosystem complexity by efficient use of very few ecosystem functions (Gatzweiler and Hagedorn, 2002). After more than a century of rapid technological progress and high economic growth within the European Union (EU), we can recognize a shift in focus beyond agriculture. Over the last twenty years, mostly because of increased social, economic and ecological problems, we have started to realize the importance of making use of ecosystem functions instead of replacing or destroying them. This process reflects the co-evolution between social and ecological systems (Gatzweiler and Hagedorn, 2002). Such an approach highlights the historically developed interactions between complex social and ecological systems, the interrelations between economic activity and ecosystems (Norgaard, 1994) and the mutual relationship between humans and their institutions (Hodgson, 2000). The notion of evolution and co-evolution refers to the characteristics of the process of institutional building as a process which is dynamic, complex and a result of co-adaptation. Adaptability implies not only adaptive capacity to respond within the social domain, but also to respond to and shape ecosystem dynamics (Berkes et al., 2003). The variables and processes that structure ecosystem dynamics have to be understood and actively managed to deal with the interplay of gradual and sudden change (Folke, 2006).

A major challenge is to understand the process of institutional building that allows adaptive – and thus sustainable development. The connectivity pattern within and between social and ecological systems plays an important role in designing institutions for sustainable resource use.

Before trying to understand the importance of institutions for sustainability and the meaning of establishing compatibility between ecosystems and social systems, there is a need to first address the content and grammar of various types of institutions and their interaction. The classification of institutions is proposed as a step in understanding their evolution and change.

2.2.3 What is Meant by ‘Institutions’?

“By your rules you shall be known.” (Bromley, 2006)

The use of the term institution has become widespread in social science in the recent years, reflecting the growth in institutional economics and the use of the institution concept in several other disciplines, including philosophy, sociology and geography (Hodgson, 2004).

Endless disputes over the definitions of key terms such as ‘institutions’ and ‘organizations’ have led many scholars to use the terms institutions and organizations interchangeably (Ostrom, 2005), or even to give up matters of definitions and propose getting down to somehow practical matters instead (Hodgson, 2004). Douglass North has insisted on the difference between organization and institution and described his approach as follows:

The study of institutions and institutional change necessitates as a first requirement the conceptual separation of institutions from organizations. Institutions are the rules of the game and organizations are the players. Organizations consist of groups of individuals bound together by some common objectives. Firms, trade unions, cooperatives are examples of economic organizations; political parties, the Senate, regulatory agencies illustrate political organizations; religious bodies, clubs are examples of social organizations (North, 1994).

The emphasis in this study is on institutions that are the underlying rules of the game and the focus on organization is primarily on their role as agents of institutional change; therefore emphasis is on the interaction between institutions and organizations (North, 1994, pp. 4-5).

Conceptually, we must clearly differentiate the rules from the players. The purpose of the rules is to define how the game is played, but the objective of the team within the set of rules is to win the game (North, 1990, pp. 3-5).

Ostrom (2005) uses terms in a manner consistent with North’s distinction:

Rules are part of the underlying structure that constitute a single action situation or a series of them. Organizations may be participants in a situation structured by rules and can, in turn, be analyzed by looking at

the linked action situations used by the group “bound by some common purpose to achieve outcomes”. Most organizations would be composed of multiple simultaneous and sequential action situations – all constituted by rules as well as by the physical world (ibid, pp. 179-180).

However, Douglass North’s influential formulations of these terms are criticized for being incomplete and misleading. Hodgson (2004) emphasizes that North’s distinction has led many people to misinterpreting him as suggesting that organizations are not institutions. He stresses that North did not actually say this, but points out a certain lack of clarity between defining organizations as players or regarding organizations as players as an analytical term, and that North was making an abstraction, rather than defining organization in that way. The mechanisms by which organizations coerce or persuade members to act together involve systems of embedded rules. The unavoidable existence of rules within organizations means that, even in North’s own definition of the institution, organizations must be regarded as a type of institutions. Thus, according to Hodgson (2004), organizations are special institutions that involve membership and sovereignty.

Not even Bromley (2006) sheds more light on the distinction between the terms institution and organization. According to his definition, in one sense the working rules (institutions) are the organization. He gave an example of the concept of corporation and defined it in terms of the rules that differentiated it from a sole proprietorship or from limited partnership, where these working rules (institutions) are constructive of the organizations they describe.

By being constructive I have in mind the idea that it is the working rules of an organization that both give that organization its identity and meaning to the outside observer, and those same working rules that determine how its members or employees actually carry out their activities (ibid, p. 44).

However, Bromley also argues that the working rules (institutions) comprise a set of conditions indicating what individuals can and cannot do (if they wish to remain members of the organization), and what they can and cannot expect from the organization to help them do (if they remain members). The working rules (institutions) define organizations. In this sense, organizations are not institutions (working rules): they (organizations) rather compose institutions

(working rules) (ibid, p. 45). Individuals act within organizational rule-systems. According to Hodgson (2004), there are multiple levels in which organizations provide institutional rules for individuals and possibly, in turn, there are organizations which can be treated as actors within broader institutional frameworks (e.g., individuals act within a nation, but in turn the nation can sometimes be treated as an actor within an international framework of rules and institutions).

Sorting out institutions and organizations is a beginning. It is, however, not enough. The problem becomes even more substantial when one moves beyond the effort to develop a general definition of institutions to ways of classifying them.

Institutions are the rules of the game in a society, humanly devised *constraints* that shape human interaction, made up of formal *constraints* (rules, laws, constitutions), informal *constraints* (norms of behaviour, conventions and self-imposed codes of conduct), and their enforcement characteristics (North, 1994).

However, as Bromley (2006) pointed out, institutions cannot be seen only as constrains. In our everyday life, rules are both positive and negative signals concerning individual behaviour. If an institution restrains an individual (or group or class of individuals), it simultaneously liberates another individual (or group or class of individuals) (Bromley, 1992). This correlative nature of institutions, meaning the dual character of any rule, was recognized by the legal scholar Wesley Hohfeld (1913; 1917). Institutions both constrain and enable behaviour. Or as Hodgson (2004) pointed out, they are not always the antithesis of freedom; they can be its *ally*. The definition by Crawford and Ostrom (2005, in Ostrom, 2005) is of a similar character. They define institutions as a broad set of shared linguistic *constraints and opportunities* that prescribe, permit or advise actions or outcomes for participants in action situations.

Another reason why we do not fully accept North's definition of institutions is because of lack of explanation how the rules are enacted. Hodgson (2004) emphasizes that this does not necessarily have to be entered into definition, but there has to be some account of how rule-systems affect individual behaviour. In this sense Bromley's' definition (1989; 2006) where he understands institutions as social *rules* that define socially *acceptable* individual or group

behaviour: they are sets of dual expectations; is more appropriate. In this thesis we are using the terminology of institutions defined Hodgson (2004) where the institutions are social rule-systems (not only 'simple rules'), or *durable systems of established and embedded social rules* that structure social interaction.

Our interest in Bromley's and Hodgson's definition of institutions arises from their use of the term 'socially *acceptable*' or '*embedded*'. In order to understand why people respect, accept and do not ignore certain rules (institutions), we have to focus on their 'habituation' or, using John R. Commons's (1934) terminology, 'institutionalized mind' or 'instituted personality'.

Clearly, the mere codification, legislation or proclamation of a rule is not sufficient to make that rule affect social behaviour (Hodgson, 2004). It might be simply ignored, just as many farmers ignore restrictions on certain pesticides, or tourists break the ban on the use of vehicles in certain parts of protected areas. It is easier to recognize the evolution of norm into law when there continues to be a good reason for that evolution. Thus, the current legal domain can be understood as simply codification of earlier customs that were found to have durable persistence or value (Bromley, 2006). People accept rules when they are socialized into and habituated to the prevailing circumstances or as Commons claimed, the individual mind is formed by accommodating itself to the prevailing customs and practices (Ramstad, 2001). Various forms of regularized behaviour become codified in a variety of ways.

On the other hand, what makes a rule become a habit and what makes people accept it? First of all, it has to be slowly and gradually embedded into shared mental models, shared habits of thought and behaviour. Habits are the conditional, rule-like dispositions that marshal behaviour (Hodgson, 2004). People will slowly start to see newly emergent practices, choices and actions as normal, right and correct. In a situation where prevailing institutions are the plausible cause of emergent problems, new institutions will become the plausible cause of solutions to those emergent problems (Bromley, 2006). Of course there will always be individuals complaining about the new institutional arrangement (e.g., new zoning restrictions in protected areas). Notice that over time, pre-existing behaviour – whether or not officially (legally) sanctioned – takes on the aura and the presumption of the right, but especially in the mind of those well served by the status quo ante. Such behaviour is simply the artefact

from the earlier times when there was 'no law' (Bromley, 2006). Then such complaints are groundless because their customary actions against which change is now to be gauged was itself not an exercise of free will or freedom; rather, the human mind had already been shaped by 'naturalizing' that which it had gradually come to regard as normal (Ramstad, 1990, p. 81). As Bromley (2006) stresses, we become, to a certain extent, who we are in virtue of what the prevailing institutional arrangement make – indeed, often *force* – us to become. This is especially true for the CEE countries, where forty years of command and control regime formed people's behaviour.

How could it not be this way? Here I would like to use an example of an interview with the mayor of a municipality in Slovakia, where he mentioned that

'Moses was leading Jews across the desert for forty years. People usually ask if it was because the desert was so large, but the answer should be no, it was because those who remembered how things had been before had to die off, whereby those arriving to the different and better land would be thankful to God for that change'.

In the CEE countries people still have in mind the system where a 'de facto' open-access regime was considered normal and right and that still forms a major mental model for individuals' behaviour. As an example, we can see the accepted violations of nature protection law – such as illegal tourist facilities in protected areas. However, after the fall of the communist regimes new acts and laws came into force, which was simply a new constellation of institutions formulated in the legislative, executive and juridical realms. According to Bromley (2006), new institutions at the national, regional, or local level represent collective actions in restraint, liberation, and expansion of individual action; a new law or a new rule is simply an alteration in prior collective action (or mere custom) that modifies extant choice domains of individuals. Some will be aided by those new working rules, and some will be harmed (ibid). Thus, when institutions changed, those whose actions have been newly constrained have invariably complained.

However, in the slow process of transition our offspring, who have never been exposed to such a regime, are (will be) socialized into and therefore become habituated to settings and circumstances very different from those of their

elders. And by being so habituated, they are (will be) different from the rest of us (Bromley, 2006).

2.2.4 Grammar and Classification of Institutions

When classifying institutions, it is reasonable to relate to the type of problem they are meant to solve and what role in the social life they have. They simplify life, co-ordinate action, bring order to human relationship, but also produce and protect values and interests. Moreover, they create expectations about others' behaviour (Hodgson, 2004; Crawford, Ostrom, 2005 in Ostrom 2005). Hodgson (2004) emphasizes that much human interaction and activity is structured in terms of overt or implicit rules.

Several scholars have criticized the drawing of a sharp line between various types of institutions. However, when studying the formation and evolution of institutions, we incline to Crawford and Ostrom's (2005 in Ostrom, 2005) opinion that clear distinction can help us understand their evolution and change; when conventions or norms evolve into rules and why.

To distinguish various types of institutions, Crawford and Ostrom (1995) use something called the 'ADICO syntax'³, consisting of five elements, which make up all the types of institutional statements. Understanding the 'grammar' of institutions can help us find what difference it makes if the prescription is a rule or a norm and to find out the point at which a norm can be said to have evolved into a rule.

2.2.4.1 Conventions and Norms

There are overlaps between norms and conventions, although they are both non-codified generally accepted regularities in behaviour that bring order, civility, and predictability to human relationships (Bromley, 2006). Conventions have a variety of forms but their common feature is to simplify various complexities of life by structuring and classifying, by combining a certain situation with a certain act or solution (Vatn, 2005). They also solve co-ordination problems.

³ A: An *Attribute* is the characteristics of those to whom the institutions applies; D: A *Deontic* defines what one may (permitted), must (obliged) or must not (forbidden) do; I: An *Aim* describes particular action or outcome to which the deontic is designate; C: A *Condition* defines when, where and to what extent as Aim is permitted, obligatory or forbidden; O: An *Or Else* assigned consequences (e.g. sanctions) for not following a rule.

Following their 'grammar', both 'Or Else' and 'the Deontic' are omitted. A convention just says how something is to be done. As Crawford and Ostrom (2005 in Ostrom, 2005) pointed out, if individuals share only 'AIC' statements, their discussion of why they would follow such advice focuses only on prudence and wise judgement. "The best thing to do when faced with the choice between A and B under condition Y is to choose A because one is usually better off with that choice." (ibid, p. 172)

In the case of norms, only the '*Or Else*' is omitted. Norms are inherited practices of everyday life that constitute much of what it means to be socialized into a particular culture (Bromley, 2006). They define what is an appropriate or right act. Although they do not arise from rulings and declarations of authoritative agents with coercive power of the state behind them, the term 'must' or 'must not' describe what individuals should do. "The obligatory action when faced with the choice between A and B under condition Y is to choose A, because this is the proper action." (Crawford and Ostrom, 2005 p. 172, in Ostrom, 2005)

When norms are fully internalized, they work via feeling of guilt and no external sanction is needed. However, some 'Or Else' can be involved, even though its not part of the definition. If a norm is not fully internalized, group pressure may still make people follow it. Vatn (2005) calls it an implicit, non-formalized 'Or Else'.

We see, therefore, that norms and conventions must be distinguished from the class of institutions for which there exist formal (codified) enforcement mechanisms (Bromley, 2006).

2.2.4.2 Formally Sanctioned Rules

Formally sanctioned rules are different from the above categories in various ways. The 'grammar' of legal institutions contains all five elements of ADICO syntax. The formalized 'Or Else' component is very important to this category. As institutions (formal rules) are sets of dual expectations, they indicate what "individuals must or must not do (compulsion or duty), what they may do without interference from other individuals (privilege or liberty), what they can do with the aid of collective power (capacity or right), and what they cannot expect the collective power to do on their behalf (incapacity or liability)" (Commons, 1924,

p.6). The ways in which those institutions are promulgated and enforced constitute the legal system of the society (Bromley, 2006). The third party with extended power to use force is the sanctioning authority of working rules. According to Vatn (2005), third party regulations – that is, state regulations – are necessary. However, Bromley (2006) emphasizes that such authority does not have to be the state with courts, lawyers and jails. It is sufficient that the society have a structured set of rules and sanctions that result in social order. When they are recognized on the part of the members of the collectivity, they are understood as the legal system (*ibid.*).

Another reason why norms and conventions are different from legal rules, is that the former tend to changed continuously, albeit more slowly (Roland, 2008). The change of legal rules does not necessary mean the change of norms. An important element is whether or not institutions can change by authoritative decision. Although the legal rules or laws can be changed overnight, their effectiveness and enforcement also depend on their acceptance in society and on the existing social norms and conventions.

2.2.4.3 Property Relations

Another type of institutional arrangement is property relations. Property relations are more than codified institutional arrangements specifying who may use an object of value and who may receive the benefits from that object. They are legally sanctioned capacity to impose cost on others. Property relations concern collective assurance among members of society with respect to a particular income stream (Bromley, 2006). To have a right with respect to a stream of future economic benefits is to have the capacity to compel the state – or a comparable authority system – to protect your control over that income stream (*ibid.*). However, it is essential to understand that property is not an object such as land, but is, rather a benefit stream that is only as secure as the duty of all others to respect the conditions that protect that stream (Bromley, 1991; 1992). It is not an object but a value (Bromley, 1991). The essence of ownership is the socially sanctioned ability to exclude others. Ownership, however, implies a degree of limited and constrained sovereignty of the owner. It is especially important to understand this in respect of natural resources – in our case,

natural resources in a national park, where some rights may be restricted. The owners of the land have a right to use only some methods for cutting trees: selective cutting can be allowed but clear-cutting is prohibited. The owners may neither destroy the forest by turning it into a ski-resort.

2.2.5 Importance of Institutions in Transition Process, Evolution or Co-evolution

The transition process of rural areas in CEE countries has been given names such as 'jump start', 'institutional gap' (Gatzweiler and Hagedorn, 2002) and 'institutional vacuum' (Stark, 1996; Hanisch et al., 2001) in literature, and the Western model of privatisation as essential institutional transformation was intended to be implemented instantly, thus ignoring the importance of interaction within SES and co-evolution of institutions.

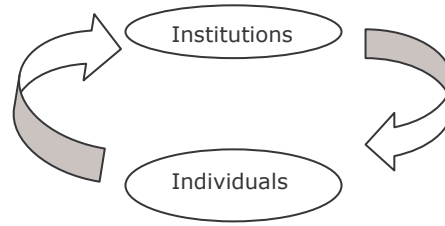
People believed that capitalism would appear magically from the morning mist if only the heavy hand of government would get out of the way (Bromley, 2000). According to Evans (2004), such imposition of uniform institutional blueprints based on idealized versions of Western institutions can be called 'institutional monocropping'. Such an oversimplified view that transition involves an unproblematic imposition of a Western blueprint is contested as being shaped by existing informal institutions and social conflicts (Gowan, 1995; Smith and Pickles, 1998). Routines and practices endure from the socialist period. Thus, the transformation cannot be viewed as a replacement but rather a recombination; in other words, actors in the post-socialist context have been rebuilding institutions not *on the ruins* but *with the ruins* of communism (Stark, 1996). The transition involves not the imposition of a blueprint on a 'blank' social and economic space, but a reworking of institutions of central planning (Williams and Balaz, 2002). The institutions are given by our history and constitute our socio-economic flesh and blood (Hodgson, 1998).

In this thesis we propose to view institutional change as the interaction between former norms and new legal rules. It is this interaction that can influence the transition process and sustainable development, both positively and negatively. To understand the process of institutional changes in the transition countries of Central and Eastern Europe, we have to underline the necessity of assuming

the prior existence of some other institutions. So the main problem, which we want to discuss here, is the theoretical impossibility of starting with – as Hodgson (1998, 2002) calls it – an institution-free ‘state of nature’ in the analysis of the transition process. Van den Bergh and Stigl (2003) also pointed out that such a process cannot occur in a vacuum but is affected by economic, social and ecological forces. According to Rammel et al. (2007), the evolution of institutions over time (either by deliberative design or spontaneously) is always constrained by path dependencies. This means that their structure, rules and objectives reflect past conditions and reveal on the process of adaptation over time (Hodgson, 1993). Thus the process of implementation of new institutions in the transition period of the CEE countries has been difficult because it has relied on previous institutions (rules and norms).

Several scholars from various economic as well as other disciplines have already acknowledged this issue, and a brief discussion is included here by reason of completeness.

By definition, institutions influence, enable or constrain behaviour or actions of individuals. At the theoretical and methodological level, there is no clear consensus among modern researchers as to what constitutes an adequate or acceptable level of explanation of the process of emergence of institutions (Hodgson, 2002). The work of many ‘new’ institutional economists is concerned with showing how spontaneous institutions can emerge simply out of interaction of individuals, without considering that those individuals are acting in a certain institutional context (Figure 2-1). We are all born into and socialized within a world of pre-existing institutions, even if these institutions were made by others (Hodgson, 1998) and our purposes can be partly explained by relevant institutions. On the other hand, those institutions can be partly explained in terms of other individuals. Individuals interact to form institutions, while individual purposes or preferences are also moulded by socio-economic conditions. Individuals are both producers and products of their circumstances.

Figure 2-1: Institutions-individuals influential circle

Based on Hodgson (1998)

Thus the idea of explaining all institutions in terms of individual interaction alone should be abandoned. What is required is a theory of process evolution and learning rather than a theory that proceeds from an original, institution-free 'state of nature' that is both artificial and untenable (Hodgson, 1998). In the recent years, a number of 'new institutional' economists have also moved in this direction and recognized the importance of the evolution of institutions, in part from other institutions, rather than from the model of rational individual behaviour tracking out unintended consequences of human interaction in an assumed hypothetical, institution-free 'state of nature' (Hodgson, 1998). They now stress that individuals changed by circumstances are an important or legitimate matter for economic analysis. Aoki (2001), for example, identifies a historically bestowed set of institutions together with individuals as given.

Our interest in looking into institutional change from the ex-post analysis arises because, according to Bromley (2006), any new institution is simply an alteration in prior collective action (or mere custom) that now modifies the extant choice domains of individuals. He also pointed out that those who will be harmed by new working rules perceive the status-quo-ante institutional arrangement as historically sanctified and therefore justified reality (ibid.).

By recognizing that human activity can only be understood as emerging in a context with some pre-existing institutions (norms and rules), we are better able to understand how such interaction can influence the durability and stability of new institutional forms. It can be thought that instant implementation of an institution such as private property rights can be a good starting point for changing people's mental models. However, ideologies have played an important role in the CEE transition countries. The very strong forty years'

influence of former institutions and a centrally planned regime have affected the people's values, preferences and attitudes for a long time. In fact, such a process never stops in the course of one's life. According to Van den Bergh and Stagl (2003), such a cultural influence can last very long. They mention that parents are also grandparents and thus transmit culture to their children and grandchildren. In a very slowly changing environment such as the period of communist regime, the cultural influence is very effective. Since institutions, especially those at the embeddedness level (norms, values, shared mental models) change slowly, building institutions of sustainability is a complex task (Gatzweiler and Hagedorn, 2002) and cannot be seen as a process starting from an institution-free situation.

Another issue is raised by looking at the institutional changes from the evolutionary perspective. If in principle every component in the system evolves, then too should individual preferences. According to Hodgson (2002), malleability of preferences can explain the evolution and stability of institutions. Institutions mould individual purposes and preferences through psychological and social mechanisms (process of socialisation and education). This preference malleability could improve the possibility and stability of an emergent institution and overcome difficulties in some cases where institutions fail to emerge (*ibid*). This process is particularly important in the transition countries, where it is necessary to change the habits of thought and behaviour in order to increase the durability and stability of newly imposed institutions. This process of affecting individuals by institutions is called downward causation (Commons, 1934; Hodgson, 2002; 2004). According to Veblen (1919), the situation of today shapes the institutions of tomorrow through a selective, coercive process, by acting upon people's habitual views of things. The key elements in this process are habits, which help to form our preferences and give rise to new perceptions and dispositions within individuals. This process will be discussed further in the next chapter.

We argue the required institutional arrangements for achieving suitability in the rural areas cannot be established easily as there was no 'institution-free space'. The period of transition in the CEE countries is a slow, complex and dynamic process that requires evolution, co-adaptation and learning rather than 'shock therapy'.

In the transition situation, we cannot speak about simple institutional change or the evolution of new institutions but rather institutional co-evolution. The next step is thus to focus on a co-evolutionary approach in which the emphasis is on the ongoing process of consecutive changes. Such a co-evolutionary approach focuses more on understanding the past (ex-post analysis), also helping to understand how today's conditions and problems were created in the past. By analysing the path dependence of co-evolutionary development, it increases our ability to maintain options for sustainable futures (Rammel et al., 2007).

In order to understand such a complex process, the following chapter focuses on the evolutionary approach, in which the emphasis is on the ongoing process of change and which takes into consideration the influence of past and prevailing institutional factors (habits) on the durability of newly established institutions. However, first we will compare different economic theories of institutional changes and the emergence of different institutions in the situation of a transition process.

2.2.6 Institutional Change Versus Institutional Co-evolution: The Co-evolutionary Perspective on Institutional change

Institutional change covers both the process of changing existing institutions and establishment of new institutions in a field where such institutions have not existed before. As a matter of fact, the process of institution building for sustainability in the CEE countries is affected by the particular procedures and problems arising from the process of transforming the former political and socio-economic systems (Gatzweiler and Hagedorn, 2002). The breakdown of the command economies of Central and Eastern Europe highlighted the problem of institution building. The question becomes to focus on whether one should rely on spontaneity or on the deliberate construction of market institutions, should one use the forces of collective bodies such as the state to form private property and a market type of exchanged structure? (Vatn, 2005)

The distinction between the evolutionary perspective on institutional changes and other institutional economics has become blurred (Hodgson, 1993; 1998). However, the 'old' institutional economists (Veblen, Commons) were the first to attempt to develop a theory of institutional evolution along essentially Darwinian lines (Hodgson, 1993). Moreover, as Van den Bergh and Stagl (2003) point out,

many institutional theories in economics emphasize the dynamics of institutions and even use the term 'evolution', although often in a non-specific and loose manner.

The main domain of 'old' institutionalism is the perspective on the importance of the concept of habits (Hodgson, 1998). In their view, the habit is regarded as crucial to the formation and sustenance of institutions. This is noticed when looking on their definition of the institution. Hamilton's 'A way of thought or action of some prevalence and permanence, which is embedded in the habit of people' (Hamilton, 1932), or Veblen's (1919) definition 'settled habits of thought common to the generality of men' are just few showing the importance of the concept of habits.

When an individual is making a decision, s/he acquires ways of looking at things, choosing her/his alternatives and dealing with others. The ways of looking at things are referred to as her/his habitual assumptions, or 'institutionalised mind'. Habits themselves are formed through repetition of actions or thought (Hodgson, 2002). As Hodgson (2004) pointed out, repeated behaviour is important in establishing a habit and, to the contrary, habits are repertoires of potential behaviour, and they can be triggered and reinforced by appropriate stimuli and contexts. They are influenced by prior activity and have durable, self-sustaining qualities (Hodgson, 2003). Veblen (1914) stressed that accustomed ways of doing and thinking not only become habitual matter of course but they come likewise to be sanctioned by social convention and so become right and proper. When their mind is institutionalised, they pay no attention to prevailing habitual assumptions till some limited factors emerge and go contrary to what they were habitually expecting. Individuals are dominated by these habitual assumptions arising from the prevailing customs of the time and place, and their opinion can change with changes in economic or political conditions (Commons, 1931), or is adapted to changing environments (Hodgson, 2004).

In the previous chapter, we mentioned the malleability of preferences and the importance of habituation for institutional change. According to Hodgson (2002), this process of downward causation – or habit formation – results from framing, shifting and constraining capacities of social institutions, which through habit give rise to new perceptions and dispositions within individuals. Once habits

become established, they become a potential basis for new intentions and beliefs. As a result, shared habits are the constructive materials of institutions providing them with enhanced durability, power and normative authority (ibid). Such an approach is especially important for our research into institutional changes in the CEE countries, where newly established institutions have not fully 'fitted' into peoples' minds. We want to understand the extent to which these mechanisms of habituation play role in a transition country like Slovakia and how such a process of habituation helps to strengthen and sustain the newly established institutions.

In Veblen's writings, habits are not actions but dispositions that guide them: dispositions or propensities. They are a tendency to behave in a particular way in a particular situation.

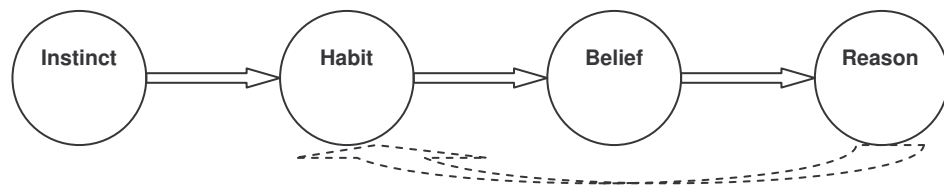
As Ostrom (2007) indicated, human agents frequently try to use reason and persuasion in their efforts to devise better rules. However, in the old institutional economics, reason and belief are removed from the exclusive driving forces of human action, compared to the neoclassical view, where habits are seen as based upon rational behaviour. From the evolutionary perspective, habits come before reason, which does not make reason or belief less important. As Hodgson (2003) pointed out, reason is always situated in a context, and relies on surrounding changing circumstances, including social institutions and thus it is an iterative process of adaptive response.

Hodgson (2004) writes that reason is deployed to make a choice when habits conflict or are insufficient to deal with complex situations and in turn, reason becomes habituated. Such adaptation of our minds in the interaction of changing conditions means, according to Daugert (1950), that habits of thought are not merely the passive products of our environment but are active, dynamic, and creative instruments searching for conduct adaptable to changing circumstances.

The view that habits and instincts are the basis for motivation, according to Veblen (1914), dominates any rational calculation of individual interest or objective. The neoclassical view gives priority to deliberation over habit. As Hodgson (2004) stresses, the evolutionary perspective questions rationality as an entirely context-independent matter, although he does not attack the notion that humans act for reason. But reasons and beliefs themselves are based on

habits and instincts, and cannot be sustained without them (ibid). Any our action is based on habits from the past. Thus by analysing any existing action situation, we must focus our attention on past habits. Margolis (1987) pointed out the hierarchy of instinct, habit and reason, where habits must be built out of instincts, and judgement must somehow derive from instinct and habits. Habit comes before both belief and reason (Figure 2-2). Habit supports rather than obstruct rational deliberation; without habit, reason is disempowered (Kilpinen, 1999). In the perspective of old institutional economics, reason always requires habit to operate. But the reverse is not always the case, because although sometimes decision leads to habits: we often form habits as the result of non-discursive impulses such as instincts. Habit has priority over reason and instinct has priority over habit (Hodgson, 2004).

Figure 2-2: Hierarchy of human action (the discontinuous one-way arrow represent dependence of reason upon habit, but habits do not necessarily rely on reason)



Based on Margolis (1987) and Hodgson (2004)

Common to these approaches is the idea of habits being the foundation of learned behaviour. In the evolutionary perspective, institutions emerge from the complex interaction among individuals, their habits and accumulated knowledge (Van den Bergh and Stagl, 2003). Learned skills become partly embedded in habits. When habits become a common part of the group or a social culture they grow into routines and customs (Commons, 1934). As Hodgson (1998) stresses, the habits and routines preserve knowledge and institutions act through time as their transmission belt. The imitation and emulation of behaviour leads to the spread of habits, and to the emergence and reinforcement of institutions. In turn, institutions foster and underline particular

behaviour and habits, and help transmit them to new members of the group (ibid.). Also Veblen saw conventions, customs and institutions as repositories of social knowledge. According to Hodgson (2004), institutional adaptations and behavioural norms are stored in individual habits and can be passed on to succeeding generations by education or imitation. Each individual learns to adapt to the prevailing circumstances, and through repeated action acquires culturally specific habits of thought and behaviour (ibid).

Summarizing the argument so far, what has been stressed in this section is the evolutionary approach to the emergence of institutions with a particular emphasis on the role of habit. As the 'old' institutionalists argue, the transmission of information from institutions to individuals is impossible without a coextensive process of enculturation, in which the individual learns the meaning and value of that information.

To recapitulate, important and interconnected aspects of institutional change in transition countries have been shown here. First, there is the importance of impossibility of taking individuals as given, without taking into consideration pre-existing institutional settings and habits, and the importance of the emergence of reason and deliberation with a particular emphasis on the role of habit. The second and the key related issue is the possibility of institutions having a reconstructive effect on the preferences of individual actors through the process of habituation and the degree to which the evolution of institutions and their durability may depend on the formation of habits.

Focusing on the transition process, we can argue that changing norms and rules of sustainability require adequate learning process embeddings or habituation of newly established institutions. Section 2.5 (results and discussion) adds further credence to these arguments by considering some empirical difficulties that are raised where the co-evolutionary path is aimed to be 'shortcut' in order to fasten the process of building institutions for sustainability.

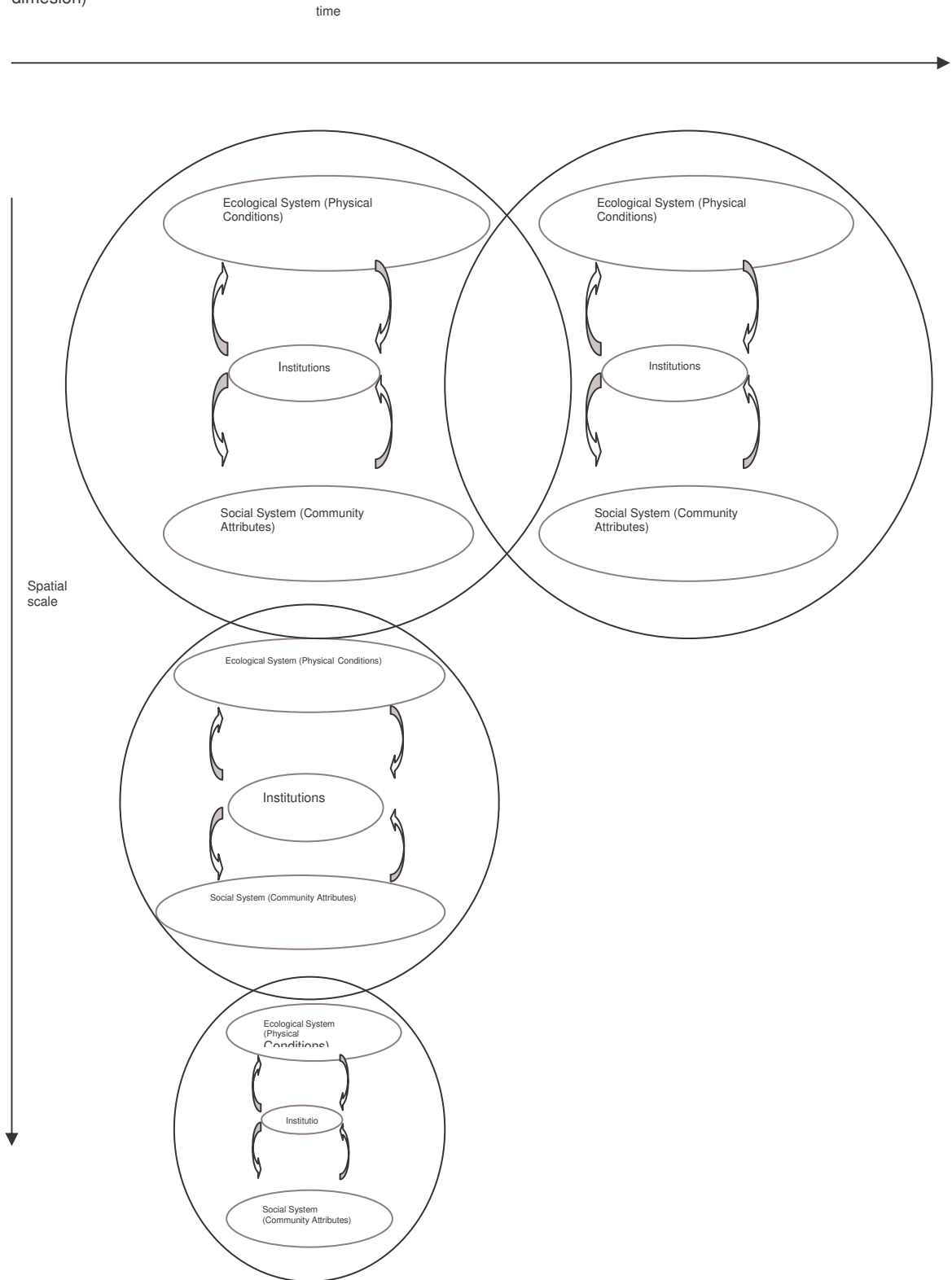
2.3 Institutions as Co-evolutionary Products of Interacting Socio-Ecological systems: Co-evolutionary Framework of SES

To understand the development of institutions for sustainability requires adequate understanding of their mutual interactions and the dynamics of socio-ecological systems. At a general level we regard co-evolution as dynamic interaction between two or more interdependent subsystems which account mutually for each other's development. The interaction between those subsystems is driven by reciprocal pressures between them. Institutions are products of these interactions in which both sides modify one another continuously by mutual feedback, creating a dynamic process shaped by error-making, learning, adaptation and change (Berkes et al., 2003), and thus represent essential linkages between social and ecological systems.

In a complex and dynamic world there is a need for social science to develop a cluster of tools for analysing dynamic situations, particularly institutional change (Ostrom, 2007). In this chapter, we want to use an interdisciplinary framework for mapping co-evolutionary interactions between various types of institutions and socio-ecological systems on the example of a rural area. For this purpose, we make use of the Institutional Analysis and Development (IAD) Framework in a combination with the co-evolutionary framework of SES developed by Gatzweiler and Hagedorn (2002) (Figure 2-3). We will examine the process of institutional change in the context of an analysis of tourism institutions in the area of the Slovenský Raj National Park (SRNAP) and hopefully understand the processes of change in a specific setting and integrate them into more general theory of institutional change.

Our analysis is built on the Institutional Analysis and Development (IAD) framework, providing the starting point as an approach with methods to measure social and biophysical factors important to explain the interactions of SES. Such a framework can address the fact that institutional change does not occur in a vacuum, but that the underlying institution building is affected by economic, social and ecological forces. Here we want to outline a framework to understand and describe the evolution of institutions in a transition process.

Figure 2-3: Framework of SES and institutions – (describing mutual interaction between institution building and economic, social (community attributes) and ecological forces (physical conditions; highlighting the interaction between current and the 'pre-existing' variables–time horizon, and different level of action arenas – local/national -spatial dimension)



The IAD framework has been used to study how institutions affect human incentives and behaviour as these impact on the management of the natural

resource system. The framework enables scholars to organize analyses of how rules, states of the world, and the nature of the community jointly affect the action arena, and are indirectly affected through feedback, the patterns of interactions and resulting outcomes achieved at a particular time (time scale in Figure 2-3) and place and how these may affect and be affected by larger or smaller socio-economic and political settings in which they are embedded as well as by larger or smaller ecological systems (spatial scale in Figure 2-3).

Before looking into the action arena and the behaviour of actors in the action arena it is necessary to understand that the behaviour of the actors is influenced by their institutions and changing cultural and material environment. As Hodgson (2003) pointed out, human individuals must always be considered in their evolutionary, historical and institutional context. Together with inherited instincts this leads to the formation of habits, which act as the grounding of purposes and beliefs.

In order to focus on the structure of any particular focal arena (particular situation) and likely interactions and outcomes we first need to dig into the underlying pre-existing variables. Since we are analysing a process that has been going on for several years, we have to take into account the pre-existing conditions, their feedback and outcomes. Those outcomes again form continuous feedback and change the action arena and its attributes.

In this chapter, we will focus more on understanding the past and the surrounding variables that might influence today's conditions and problems of the particular action situation. As Veblen (1919) and Ostrom (2007) pointed out, the assumption of given individuals under given institutional conditions would lead to a static outcome. We want to understand how institutions of sustainability can emerge in socio-ecological systems, while examining theories and topics relating to the institutional creation and change. The aim is to understand how the institutions of interaction of socio-ecological systems emerge, are selected and transmitted by looking at the pre-existing and changing biophysical, cultural and institutional situation.

As the IAD framework stresses, institutional statements (constraints and opportunities) interact with influences from the biophysical world and the social world to shape the structure of the action situation (Ostrom, 2005). Or, as Gibson et al. (2000) pointed out, different institutions (attributes of users groups,

system of property rights, extant level of rule enforcement) interact with national legislation in different ways to produce particular patterns of resource use and conditions. Thus even under the same national legislation the behaviour of different communities and impacts on the resources differ substantially. The framework will help us to reveal the dynamics and interactions between the main institutional structures, actors and surrounding past and current conditions.

Such complexity draws attention to the fact that the contact between social science and natural science cannot be limited in dealing with socio-ecological systems, and that there is a need to 'build a bridge' spanning different combinations of natural science and social science thinking.

Some analysts are not interested in the role of these underlying variables and focus only on a particular arena whose structure is given. An action arena can be understood as a social space where individuals interact. However, an action situation cannot occur under zero conditions but is affected and shaped by ecological (*biophysical world*), social (*nature of the community*) and institutional (*concept of rules*) conditions. According to Hodgson (2004), Veblen shared with Comte, Marx and others the insight that we are born into a world of many institutions that are not of our making. To take an action arena and actors as given would be to remove their past.

We are especially interested in the evolution of institutional settings affected by their social and ecological background. In such a co-evolutionary perspective, we focus on the dynamic interaction between two or more interdependent systems driven by reciprocal selective pressures and adaptation between these subsystems (Rammel et al., 2007). Institutions are shaped and selected by ecological and cultural factors and by feedback, learning and adaptation they modify the resources and society within the socio-ecological system. According to Norgaard (1994), the co-evolutionary theory stresses that bio-physical settings and institutional features change together and thus the evolution of each is reflected in the evolution of the other.

Before we look into the action arena of tourism in the national park in our research, we want to address how the process of transition (mainly changes in legal institutions such as property-right arrangements) has influenced the evolution of institutions. This framework will help us to understand how this

process of evolution was shaped by the attributes of the resource and social actors and their institutions. As an evolutionary process, there must be the generation of new alternatives, selection among new and old combinations of structural attributes, and retention of those combinations of attributes that are successful in a particular environment (Ostrom, 2007). In order to identify the dynamics of these co-evolutionary processes properly, we combine the IAD framework with the co-evolutionary framework of SES developed by Gatzweiler and Hagedorn (2002). Under this combination we can clearly see the cyclic nature of the interaction of the 'pre-existing' variables (Figure 2-3).

By highlighting the co-evolutionary aspect and the time horizon, we can understand that the changes in an action arena cannot occur in a vacuum but are highly influenced by 'pre-existing variables' (time arrow in Figure 2-3). Any change in the action arena, change in institutional settings or simply any new law or rule is an alteration in the prior collective action that now modifies the extant choice domains of individuals (Bromley, 2006). According to Folke (2006), it is difficult or impossible to understand a system without considering its history, as well as its social and political context. The previous institutional settings thus have a very strong effect on the current institutional changes. As Hodgson pointed out, individuals learn to adapt to specific existing circumstances (customs, institutions), and through repeated action they acquire culturally specific habits of thought and behaviour. However, these circumstances have also evolved over time. Evolving institutions instruct one how to produce the expressed situation or the structure of relationships among individuals that are also affected by the biophysical world and the kind of community or culture in which an action situation is located (Ostrom, 2007). All pre-existing variables and habits influence the situation in the current action arena. We have to understand them as changing and evolving.

This part of the framework (evolutionary process of influence of institutions on human actions) also stresses the importance of institutions to individuals' behaviour. As 'old' institutional economists argue, institutions can work only because they are embedded in shared habits of thought and behaviour. Habits thus serve as an important substance of institutions and make them become stable and durable.

When analysing problems of tourism, the weather conditions, size of the forest, landscape conditions or altitude are all important variables affecting a focal arena. Tourism in the lowlands faces different problems than in the mountain forest areas. The attributes of the community such as its size or stability can make substantial difference in regard to the presence or absence of shared norms that facilitate coping with problems. According to Ostrom (2007), while analysing patterns of interaction and outcomes of an action area, one need to focus on the rules and interaction of the specific combination of rules together with the biophysical and community attributes. Thus, in our research we want to examine the cyclic nature of the evolution of the rules in the interaction with biophysical and community attributes.

2.4 Data and Methods

2.4.1 Problem Statement and Description of the Study Area

In Slovakia, like in other Central and Eastern European countries, fundamental institutional changes have taken place in the last two decades. The most important features of the transition are the shift from central planning to a market economy, the democratisation and decentralization. All these processes have altered the formal and legal rules and as a consequence slowly induced new norms and conventions, and have been supported by these.

National parks together with protected areas comprise 23% of the country's total area and their existence is supported by wide institutional settings. Various laws and government decrees define the rights and the access to natural resources in protected areas. The Slovenský Raj National Park (SRNAP) is situated in the Eastern part of Slovakia. The area of the Slovenský Raj started to be protected in 1964 as the Slovakia's first Protected Landscape Area under the former Czechoslovakia, and was elevated to a national park on 1st April 1988. It covers 19,760 ha and includes a number of nature reserves, some protected sites and natural monuments. Much of the land within national parks in Slovakia is now privately owned. The land in the Slovenský Raj National Park has a lot of different owners, while 58% of the area belongs to the state, 15% belongs to the region and the rest is private ownership of municipalities, association of owners, church and individuals.

The political changes in 1998 have been accompanied by a collapse of economies in the early 1990's. In the area of SRNAP most of the big factories (mining and engineering industry) have been shut down. As a consequence of the increased unemployment, local actors started to focus their economic activities on tourism business, represented mostly by small and medium-sized enterprises. As the tourism culture was not supported during the communist era, the current development can be characterized as chaotic, lacking appropriate incentives to encourage sustainable behaviour, where actors mainly focus on short-term benefits based on natural resource exploitation. Over the last 20 years, several different rural development and tourism organizations have emerged and perished in the area of SRNAP. Most of them have emerged top-down, as a replacement or recombination of previous socialist organizations (e.g., the Slovak Association of Nature Protection, Slovenský Raj Administration of Tourism Facilities) with the attempt to impose a Western blueprint, however without considering the lack of finances, capacities and experience of the actors. However, there are also a few which have emerged bottom-up and gradually, based on previous experience and learning by doing. Such an example is the organization called Microregion SRNAP, which together with the Park Administration has been trying to join the European network of protected areas: the Pan Parks⁴.

2.4.2 Research Methods

The research methods applied encompass qualitative techniques. Information and data were collected from local actors involved in the rural tourism in the area of the Slovenský Raj National Park. The methods used in this research include in-depth interviews, observation, and two workshops. Various actors in the field of tourism and nature protection were interviewed. The interviewees were classified into different categories of organizations with various types of formal and informal rules (institutions) that both give those organizations their

⁴ Pan Parks project initiated by WWF International is to promote synergy between nature conservation and local development through sustainable tourism in European protected areas. Five Pan Parks principles, covering environmental, social, economic and cultural aspects are a formative precondition for the certification of candidates to the network and this makes them eligible for network benefits such as marketing programmes, projects in rural tourism and presentation of good practice.

identity and meaning to the outside observer. The categories are the following: *governmental authorities, organizations focusing on tourism and rural development, associations of tourists and entrepreneurs/associations of entrepreneurs in tourism*. The first three groups have emerged top-down previous socialist organizations by recombination of former rules (institutions) that define them. The last one – associations of entrepreneurs – are organizations that have emerged bottom-up and most of their formal rules have not existed before. Associations of *Entrepreneurs in tourism* are comprised by land owners or Bed and Breakfast (B&B)/hotel owners in the area in and around the Park. *Organizations focusing on tourism and rural development* are associations of entrepreneurs and municipalities whose activities are mostly oriented towards tourism and local development in the area of the Park. *Governmental authorities* are municipalities situated in and around the Park boundaries, the Park Administration, rescue services, and the fire brigade. *Tourists* are domestic and international visitors to the National Park. Moreover, we used secondary data from various documents, such as regional statistics, regulations, and statutes of associations and co-operatives.

We conducted in-depth interviews with mayors of sixteen municipalities around the Park, rescue services, the fire brigade, and the manager and several employees of the Park Administration. We also interviewed statutory representatives of two associations of tourism entrepreneurs: the Association of Slovenský Raj South and the Association of Entrepreneurs of the Slovenský Raj, and three statutory representatives of associations of municipalities: the Association of Municipalities of the Slovenský Raj, the Microregion Slovenský Raj North, and the Microregion Dobšiná. From a variety of tourism entrepreneurs we randomly interviewed 20 guesthouse or hotel owners from the associations of entrepreneurs and 7 landowners. Moreover, we carried out 20 in-depth interviews with visitors to the Park. We also obtained a lot of important inputs from two workshops that were organized for the purpose of another research project.

The interviews and observation, during which the past experience and its influence on future expectations, needs and interest of local stakeholders towards tourism and nature protection were explored, contribute greatly to the future understanding of the main motivations, problems behind tourism

management and development assigned to the area of the National Park. All interviews included a variety of questions concerning the comparison of the respondents' current activities with the past, challenges since the beginning of their activities in comparison with the current situation, perceived successes and failures of their activities, possibilities of co-operation with other actors in comparison with the past, and their view on future changes in their area of interest.

Before analysing and developing a theory of institutional change and applying it in the particular area, it is helpful to begin to understand change in a specific type of setting. We focused on a mapping of norms and rules especially in the field of tourism, and recording changes in that list over time brought about diverse processes for making changes (norms-to-rules, rules-to-habits). First we looked into the newly established institutions and compare how they fit into pre-existing institutional settings and the actors' habits. We explored how habits influence the formulation of norms, and subsequently how and why norms change into rules. Next we wanted to see which of the newly established institutions become rule-in-use and explored the possible processes of their habituation. Moreover, by looking into inventory of various new institutions we wanted to see if the process of habituation makes those institutions more stable and durable. Our framework would help us to understand how changing attributes of the community and the physical conditions of the area influence the evolution of institutions.

Only by picturing a complete scenario of formal and informal institutions could it be explained how establishing new institutions (e.g., property rights) during the transition process influences the process of habituation and how habits and pre-existing institutional settings influence the institutional co-evolution.

From the collection and analysis of primary and secondary data (in-depth interviews) we gained the experience that qualitative measures could usefully address the issue of transition process and co-evolution of institutions. In particular, the role of history, informal institutions and actors' interest and perception towards tourism activities proved to be of major importance for the process of institution building in transition.

2.5 Results and Discussion

This section concentrates on the empirical findings of the whole data collection process. Framed within the theoretical construct of the evolution of institutions, our study focuses on interaction of various types of institutions in the SRNAP, different ways of their evolution and the process of their adaptation, reproduction, socialization and habituation. The analysis concerns the major implications of institutional changes and tries to see institutional change as an interaction between various types of institutions; interaction between formal and informal rules. It is this interaction that influences institutional change and can influence the durability and stability of newly imposed institutions. It is necessary to understand how the interaction of former informal institutions and habits with newly imposed legal rules influences the sustainable development, both positively and negatively. This interaction is not one-sided: informal rules and habits exercise causal pressures on legal rules, and, by the same token the latter can influence the path of informal rules and habits.

In the first part of this chapter, the problems of intentional implementation and difficulties of co-evolution are explored without taking into consideration pre-existing institutional settings and habits. In the next section, we provide examples of the co-evolutionary process of institutional change and habituation of institutions and the possible reconstructive effect on the preferences of individual actors. Moreover, we will try to explore the degree to which the evolution of institutions and their durability may depend on the formation of habits. The last part tries to bridge gaps and explore links between different forms of evolution of institutions for sustainability and highlights the importance of the role of the state, sufficient time and learning.

In order to study the evolution of institutions and the possibility of habituation of newly established rules, the first methodological step is to develop a method to understand the rule configurations and the following rule changes. This will make it possible to study the relationship between the implementation of new rules and their durability and possible habituation.

2.5.1 Changing Institutions: What Happened at the Beginning of the Transition Process?

In this chapter we want to emphasize the difficulty for a newly established formal rule to become a rule-in-use, a habit, and institutionalised in peoples' minds. The instant implementation of formal institutions is likely to be unsuccessful, because they are brought into different institutional settings. The interaction between different types of institutions can provide an explanation for why the instant implementation of formal institutions does not work. The roots for changes must be found within their previous and existing informal rules and habits. To understand this process, we will look into the change in a specific type of institutional settings during a transition process, their gradual evolution and connection to the pre-existing and changing habits, attributes of the community and physical conditions of the area. This process cannot be understood as a process of designing *optimal* rules (Ostrom, 2007), as was previously planned, but as we will see in our analysis, this process was based on experimentation and learning.

The transition from central planning to a market economy has presented a substantial challenge to the CEE countries. Policy changes after 1989 were based on expectations about potential outcomes and the distribution of these outcomes for the participants. In Slovakia, restitution and privatisation was the main issue. The legal institutional background of privatisation and restitution came into force in the early 1990's. The legislation on privatisation and restitution was set out by the Law on the Transfer of State Property and the Law on Land and Facilities, respectively. The property that had been seized by the socialist government in 1948 was restored to the previous owners.

The process of privatisation and private property rights establishment was mostly considered as distribution of disposition of property rights focusing on physical entities (former nationalized land and facilities). The ownership is understood as the full rights left to the individual after certain governmental restrictions and reservations are taken into account. It implies a degree of limited and constrained sovereignty of the owner (Bromley, 2006). This is especially true in protected areas where owners of the land or related assets have several duties towards other individuals. Property rights in protected areas

are often duties causing negative income effects. Ownership of the land does not imply complete autonomy of the owner (Bromley, 1992).

The entire area of the Park is administratively divided into the cadastral land of several municipalities. As we mention in the chapter Description of the Area, most of the territory of the Park is formed by several bigger and smaller plateaux and deep canyons. Access to those parts of the Park is ensured by various technical equipment (wood, iron, and ladder steps) built in the 1960's and 1970's in the cadastral land of five out of sixteen municipalities located around the Park boundary. In 1991, the ownership of the technical equipment has been allocated to the municipalities. To look into this change, we have to understand that for the municipalities this transition meant mostly the creation of completely new institutions (change of property rights), but with former habits of thought. Until then that equipment had been in the maintenance of the state organization Slovenský Raj Administration of Tourism Facilities, established in 1974, and the municipalities had not had any experience in managing that equipment. Without such equipment, access to the canyons would be impossible. The new ownership structure has caused several problems for those five municipalities which did not have any previous experience with maintaining the equipment, no ownership relation and moreover, no additional money has been allocated to them to handle this duty. After more than forty years the *'it does not belong to us system'* was rooted in peoples mind. As the current director of the Association of Municipalities stressed:

'The State built this equipment on the land of the municipalities and then decided to "restore" it back to the municipalities. Here you go and take care. And the municipalities became the owners but were really surprised. One reason was that they are as poor as church mice, the other was that all of a sudden the municipality was responsible for something what was for a long time owned and maintained by someone else.'

However not only former norms and habits are important for establishing institutions for sustainability. We also want to illustrate that the other variables and processes such as biophysical world or attributes of communities are as important as the informal rules and habits in affecting outcomes and can lead to different distribution of resources among those affected and thus a strong heterogeneity among participants. Due to the different terrain characteristics in

the SRNAP, the biggest proportion of the equipment was built on the cadastral land of two municipalities Hrabušice and Smižany. After the allocation of this equipment the problems started to be visible mostly within these two municipalities. Although all municipalities within SRNAP could receive almost the same benefit streams from tourism, Hrabušice and Smižany have had to bear the highest costs of maintaining the Park equipment.

Attributes of the community is another important factor for the selection and shape of institutional settings. One of the first changes in the area of tourism in the SRNAP after establishing the private property rights is the appearance of a few local entrepreneurs (B&B or small hotel owners). Those first entrepreneurs were mostly the same people offering tourism services during communist time, however on the illegal base. They started their business and cooperation with the same simple set of norms as during former era. If they have no vacancy or do not offer the demanded service they recommend another B&B or hotel, they should support each other, advise each other, charge similar prices for accommodation and services etc. Such a simple norm-based system might survive as long as all the entrepreneurs would be approximately of the same size, and the area would be relatively isolated from immigration. There are many possibilities for conflict to arise and the norms would have to change into rules. The rapid expansion of inbound tourism after 1989, especially in the early 1990's, was followed by an increase in the number of entrepreneurs offering accommodation and other tourism services in the area. Due to its unique natural character, the Slovenský Raj started to attract many non-local and foreign investors and entrepreneurs. The new entrepreneurs who came into the area were mostly wealthy, big and foreign investors. It was easier for them to promote themselves and attract more tourists. Circumstances have changed and new conflicts arose. Small entrepreneurs have not been able to attract sufficient numbers of tourists. The new entrepreneurs argued that they had bought the land (facilities) in order to generate more profit as soon as possible and they did not need to promote the other B&Bs.

The first lesson derived from our results so far concerns the importance of former habits and informal rules but also physical conditions and attributes of the community when new formal institutions are established instantly. The different terrain conditions of the area resulted in different shares of costs

between municipalities. Such a situation together with no former ownership culture was critical for the common maintenance of the equipment when property rights were given to the municipalities. In the case of local entrepreneurs, informal rules enduring from the past and increasing heterogeneity of entrepreneurs were critical at the beginning of the transition process.

2.5.2 Building Durable Institutions

In order to solve the situation with the technical equipment, an organization called 'The Association of Municipalities' was established on 20th March 1992, as the recombination of previous state socialist organization the Slovenský Raj Administration of Tourism Facilities. The common maintenance of the equipment was the only task of this association. It is usually a big challenge to design fair rules when participants bear different streams of benefits and costs (Ostrom, 2007). The first basic formal rule was that each municipality had to contribute to the common budget 10 Slovak crowns (SKK) per inhabitant per year. This meant about 150,000 SKK per year. The town of Spišská Nová Ves refused to pay the 10 SKK, and contributes annually only 1 Slovak crown per inhabitant. The reason is that the town of Spišská Nová Ves has approximately 40,000 inhabitants and its annual contribution to the budget even of 1 SKK per inhabitant is almost one quarter. However, other municipalities considered that inadequate and unfair distribution of costs. It was difficult to make such a rule become habituated in peoples' minds where previously there had been no rule or norm for co-operation and financial contribution, and thus no habit. The budget of the former communist organization Slovenský Raj Administration of Tourism Facilities was financed by state. Hodgson (2002) argues that institutional change can cause change in habits of thought and behaviour. However, in this situation even the formal rules of contribution were not developed by any administrative agency or state, not imposed from above; later this rule was seen as unfair and it was difficult to acquire the habit of contribution.

Another conflict arose when the new rule was set. Since the contribution to the budget of an annual fee was not sufficient to cover the maintenance of the equipment, the association started to think about another source of income.

Since the summer season of 2000, tourists have had to pay an entrance fee⁵ for the use of the municipal equipment. This rule became another formal institution of the association. However, there was no official rule concerning information about the amount of tickets sold, so the members did not get exact information about how many tickets had been sold. At the end of the year, some of the municipalities received more than two and a half million SKK and others just 300,000 SKK. Such heterogeneity within the cost distribution and non-transparent setting have led to new conflicts. Two municipalities left the association in 2003. Consequently this situation together with the unclear and non-transparent rules created conflicts between other members and later resulted in the break-up of the association.

Due to the changing conditions and rising conflicts, local entrepreneurs have also decided to establish a common organisation and make new rules. Due to the incoming new entrepreneurs the habits of different actors conflicted and were insufficient to deal with the more complex situation. According to Ostrom (2007), conflict over the interpretation of rules is a process that can frequently lead to changes. In turn, through repetition of actions, even by imposing rules, habits themselves can be formed (Hodgson, 2002). However, the rule has to be viewed by participants as fair and transparent. Two such associations have been established in the Spišská Nová Ves district: one which consists of entrepreneurs mainly from the north-east of the region was established in 1999; the other, representing the south of the region, on 18th May 2001. Although membership in these associations has been voluntary, the rules of those organizations had to be followed by each member. The most important norm-rule change within the northern association was formalized meetings twice per year. On these meetings members went through issues that had arisen during each season. Each member also referred to the others about any demands or requests made by tourists. Based on that information, members have been aware of any necessary changes in their services. The biannual meetings of members of the northern association have become institutionalised. Creating a rule that enhances repetition of the event of seasonal meetings might help to

⁵ However, one could argue that due to unique character of the area, tourists are willing to pay the price of an entry ticket. Thus the economic instrument 'entry ticket' is useful for collecting money which are later use for reconstruction of the technical equipment, but not for reducing the tourist pressure.

habituate such a rule and thus the rule itself will become stable and durable. If the members are willing to invest in the transaction costs of such meetings to search, debate, and learn about better options, it can contribute to the evolution of a more productive outcome (Ostrom, 2007).

However, in the southern association the biannual meetings have remained informal and reduced to annual with fewer and fewer members taking part:

'Sometimes it is difficult to get all members together, people do not have the time, but we do not want to force anybody to meet.' (current director of the southern association, pers. comm).

Contribution to the common budget in both associations, however, was not set out by any rule; each member has decided how much they are going to contribute. This unformalized institution, however, has become ineffective later with the changing situation. The budget has been used to produce a catalogue of all members and information booklets and sheets about the attractiveness of the area. These brochures then have been distributed to information centres; members distribute them to their customers or they have been used at tourism exhibitions. The only compulsory contribution was demanded prior to a tourism exhibition where the Association wanted to participate. The participation of the Association at exhibitions and the distribution of the catalogues has reduced the transaction costs for promoting each individual entrepreneur.

Over time, members in the Association of Entrepreneurs found themselves in a changing economic situation in which more and more settlers move into the region. New settlers, although becoming members of association, were unlikely to know or understand the norms of contributing to the common budget. In the first year, the new members decided to pay the membership fee and would be included in the catalogue. However, the next year those members chose not to contribute to the budget by paying the fee, but the catalogue would be used for several years. Thus those members would become free riders. Members of the association then found strangers benefiting from the association without contributing.

In this case we also revealed that to do something voluntarily (to pay a fee) was not a habit in the former times, while membership in any kind of association was usually forced. The communist regime, represented by massive state interventions and absolute control over all actions, resulted in a dramatic

decline of trust in any formal organizations or co-operatives. Even after the fall of the regime, people have still been reluctant to create or join any organization. As highlighted by the owner of a guesthouse:

'Why should I be in such an association, in the past I was forced to join 'the Party' now nobody is going to tell me what to do and whom to join. At the beginning they asked me to pay so I paid but then I changed my mind and I don't want to contribute to any 'co-operative', as a private entrepreneur I want to be free.'

It would take long time for such an institution of voluntary contribution to be habituated in peoples' minds. That may lead them to decide to change the norm regarding the voluntary contribution to a rule that requires members to pay annual subscription fees. The Association of Entrepreneurs in the north of the region created a statute where the membership in association was guaranteed by paying the fee at least for two years: the time of validity of the catalogue. However, in the Association in the south of the Park the contribution fee remains voluntary. By interviewing entrepreneurs from the southern association, we understood that paying the fee to the organization was not taken for granted. According to a member of the southern association, membership in the association should not be connected with the subscription fee:

'Why should I pay each year? If the association is going to take part at an exhibition, I will contribute. I would not want to be member if they would ask me to pay some fee. I am paying taxes already, so why should I pay something more?'

The task of the southern association has become focused mostly on reducing the transaction costs in taking part in exhibitions. A few years after the establishment, the southern association was almost not operating.

2.5.3 Process of Co-evolution

In this section, we introduce the possibility of looking at the change of institutions as a co-evolutionary process of learning by doing and error-making. Based on the experience obtained during the existence of the Association of Municipalities and the dissatisfaction of several of its members, a few municipalities decided to leave the association and established a new organization called the Microregion SRNAP on 15th September 2003 as an entirely new structure with new rules of operation. In contrast to the Association,

its ambitions were to support the endeavour of the SRNAP to join PAN Parks, support nature conservation in the SRNAP, diversify the cultural activities and support the traditional crafts, and co-operate in the provision of tourism services. The rule of the annual fee remains the same, but each municipality is contributing the same amount per inhabitant. Also the information norm about the amount of tickets sold has been changed to a formal rule and each member had access to this information. However, after the experience of uneven contribution to the common budget based on tickets sold, the municipalities have decided to exclude this activity from their tasks.

According to Ostrom (2007), imitation of rules used by others is also a likely process leading to rule evolution over time. However, she also argues that when the indicators of success used by “copiers” are reliable, the systems are relatively similar. A few entrepreneurs from the south of the area started to be interested in the success of the northern association. In particular, the current director of the southern association has become the leader in organizing regular meetings of tourism entrepreneurs. In a social and economic environment where participants can learn from successes and failures of others (such as regular meeting places where actors chat about the problems they are facing), rules can evolve towards more productive outcomes (Ostrom, 2007). However, it was found out that members have inhibitions in expressing their opinions towards the problems they face. As the director of the southern association pointed out:

‘People are afraid to talk about problems, to express themselves in public. I think they are scared that at some point it can be used against them.’

The former communist economic and political systems had a deficit regarding participation, and expression of opinions against the regime was not allowed. The autocratic political design of the communist governments tried to avoid people’s free participation in public affairs. The communist regime thus strongly influenced the current willingness of people to participate in any public or community related affairs. However, such meetings are helping to make the association more successful; by sharing experience the entrepreneurs slowly come to understand each other better and co-operation improves. The Association, together with two municipalities, has also managed to get a grant

for information boards in the area. Mostly during the meetings they learn why such information is important to tourists:

'Now the situation is getting better, we have these information boards here and that can attract more tourists here to the south. At one of the meetings somebody suggested that it would be good to improve the information system in the area. At first not everybody wanted to contribute to that, but we discussed it and they understood why it would be beneficial to all of us.' (owner of a B&B from the south of the Park, pers. comm.)

The director also formalized the annual contribution for members depending on their size. Small entrepreneurs have been paying 200 SKK/year and bigger entrepreneurs 600 SKK/year. The leadership in this case was critical for the success and rebirth of the Association.

2.5.4 Exploring Links of Imposed and Spontaneous Institutional Change in the SRNAP

Institution building towards sustainability is a very specific, complex and not completely predictable process. The question arises whether it is possible to achieve both transition and sustainability within a few decades. What is missing here is sufficient time given for building durable institutions or for co-evolution of institutions for sustainability. Such a process is influenced by pre-existing institutions. People are mentally still under the influence of the previous regime. We argue that in the transition situation of the CEE countries, the assistance of a powerful pre-existing institutional setting is required to create or sustain institutions of sustainability. As Hodgson (2002) pointed out, while some institutions can emerge and develop spontaneously, it is often the case that an institution reaches an important stage of development when it becomes consciously recognized and legitimated by the state.

In the case of a transition country, the state can play an even more powerful role than just a declaratory or legitimising one. This argument does not imply that the state is necessarily the best or only solution to institutional change. However, the bottom-up emergence of an institution or institutional change in a transition situation is a very long process and is influenced by pre-existing institutional settings. An example from the SRNAP is the effort to create a fund for sustainable tourism development in the area. The emergence of such an instrument has never occurred spontaneously or by a bottom-up approach of

individuals. There was no habit or previously existing institution of investing finances in a common budget, specifically for issues connected with the environment or sustainability. Only by decentralization and state intervention the municipalities were able to introduce a tax on the tourist service and use it for their own purposes while returning it into the development of the area. Each provider of accommodation has to pay the municipality a tax based on the number of tourists and nights spent in his/her hotel. In the early stage of implementation of this instrument most of the local entrepreneurs were against it. They were against especially due to the fact that the state or government imposed it. However, in most cases when they found the re-investment of this money are guaranteed by transparent and fair rules, they started to support the idea and understand it as necessary and an important instrument for local sustainable development. The support of the tax instrument by local actors and the creation of a habit of paying own money for sustainable development make this institution more durable.

In the case of controlling access to the Park and reducing the pressure of tourism on sensitive areas, especially when the impact of such pressure is not yet visible, the development of such an institution without state intervention thus can take a very long time. The relaxed attitude of the actors to environmental problems can be understood in connection with the previous regime, where values and attitudes towards sustainability or environmental issues were not given high priority and thus environmental protection is not embedded yet as a habit. In such circumstances, we cannot expect such a rule to evolve spontaneously or in a bottom-up process of local actors. By creating the entrance tickets, the municipalities – being practically the only entities able to control access to the Park – have had a chance to regulate visitors by creating the rule of maximum tickets sold per day or increasing the price of the tickets in peak hours and thus decrease the pressure on the environment. However, the municipalities are advantaged by the non-existence of such a rule as they receive higher income to their budget. Institutional changes as a reaction to environmental crises are very important but sometimes very difficult to accomplish. The state intervention is critical for the creation of such a rule. However, such a process should go in line with the actors' involvement and transparency.

We can conclude that neither state intervention nor bottom-up emergence can work alone in transition countries. It is not possible to rely only on one perspective; both are necessary for the evolution of institutions of sustainability. However such process should go in line with actors' involvement and transparency.

2.6 Conclusions

The analysis of the evolution of institutions in the study area shows that past institutional settings have had a significant influence on the current institutions and behaviour of the actors within the Slovenský Raj National Park.

In summary, we can say that many institutional changes in the last 20 years have created a complex institutional setting for nature protection and development of tourism in national parks in Slovakia. The transition process has offered some opportunities and triggered changes, but has also been influenced by pre-existing institutional settings and thus created new conflicts. Instant implementation of an institution such as private property rights can be a good starting point for changing people's mental models. However, ideologies have played an important role in transition countries. The very strong forty years' influence of former institutions and a centrally planned regime have affected the people's values, preferences and behaviour for a long time. The transition process is thus very slow, mostly due to embedded habits and informal rules. Following Commons (1943), we have argued that when habits become a common part of a group or a social culture they grow into routines and customs and consequently, we can understand them as barriers to institutional changes. Especially at the beginning of the transition process, individuals were dominated by ex-communist habitual assumptions arising from the prevailing customs of the time and place and thus newly established institutions have not 'fitted' well into their minds. In the SRNAP, most of the organizations and their corresponding institutions emerged as a recombination of previous ones and the imposition of new rules was affected by previous institutional settings. In the changing social and economic environment, it was difficult to rely on former informal rules and habits prevailed from the communist period. Informal rules and conventions are those types of institutions which together with habits change slowly. One can always find examples to the contrary, but norms and

habits, seen as a whole tend to change slowly. The interaction of those slow-moving institutions with newly imposed institutions created conflicts. Thus most of those organizations did not work effectively and either have vanished or transformed to completely new ones with formalized rules. Moreover, the instant implementation of Western institutions (or 'institutional monocropping') was affected by different biophysical conditions and the attributes of local communities. It provides a rationale why reforms in a given area must be build on these local conditions. Ignoring these factors in designing institutional reforms is likely to be a recipe for failure.

By looking at the institutional changes from the evolutionary perspective, another question arises: How to change deeply embedded habits and preferences of individuals? Newly established institutions can mould individual purposes and preferences through social interactions. This process is particularly important in the transition countries, where it is necessary to change the habits of thought. Individuals learn through repeated action and thus can acquire new specific habits of thought and behaviour. Repeated behaviour is also important in establishing a habit and behaviour in order to increase the durability and stability of newly imposed institutions. By creating rules that enhance the repetition of actions, various rules thus become habits. Thus, this process of habituation helps the rule itself become stable and durable. However, it is not our intention to see individuals only as puppets of institutions. Not only institutions that enhance the repetition of actions are important for the change of habits. We observed other factors such as leadership to be critical for the habituation of top down implemented institutions.

We argue that this gradual process is particularly important in the transition countries, where it is necessary to change the habits of thought and behaviour in order to increase the durability and stability of newly imposed institutions. In this chapter, we wanted to highlight the 'slow-moving' informal institutions and habits as one of the key elements in the transition process: on the one hand, they can be a barrier and slow down institutional changes, but on the other hand they can help to make up our preferences and give rise to new perceptions and dispositions within individuals. It is necessary to mention that the habit is not the only factor involved in the transition process, but it is important when interacting with other factors.

3 The Importance of Robustness for the Sustainability of SES

3.1 Introduction

Although the institutional changes in the tourism sector in the SRNAP are slowly evolving towards new stable and durable institutions, especially in the sense of involving local actors in decision-making and a bottom-up approach to planning, they still lack a sustainable approach. Moreover, as Ostrom (2007) argues, one should not expect that all locally governed systems will eventually find effective or sustainable rule configurations. Some will experiment with rule configurations that are far from optimal. With increasing numbers of tourists in protected areas and the consequent pressure on the environment, one would expect the evolution of some institutions to deal with such issue. This issue can be highlighted in systems where it is very difficult to prove the consequences of any pressure due to lack of information about that, or due to the complexity of that system. The consequence of a disturbance or gradual change may result in a crisis or even in a collapse of the system (Folke et al., 2002). Such complex systems and the changes in them can thus neither be understood nor controlled completely (Rammel and van den Bergh, 2003).

It can be stated that slow persistent change usually leads to a relatively smooth adaptive process. Over time, co-evolutionary and adaptive processes in ecological systems are the reflection of such disturbances. However, in socio-ecological systems (SES), the components of which are not only self-organizing (ecological systems) but also designed (rules) (Anderies et al., 2004), the adaptation could be static and non-evolutionary and lead to rigid institutions, which are unable to manage ecosystems sustainably (Holling et al., 2002). Moreover, when the disturbances are slow, mild at the beginning, and their consequences are not fully noticeable and recognisable, the designed adaptation might be underestimated. Moreover, the cumulative effect of such disturbances might cause severe and often unavoidable change of the system. For instance, growing tourism in several developing countries has led to the destruction of ecosystems and caused biodiversity loss. On the other hand, in the Central and Eastern European (CEE) countries, due to the previous communist regimes and borders closed for mass-tourism, the biodiversity of

habitats and species is still unique and high. However, after the fall of the regimes the natural and cultural heritage of those countries started to attract more and more foreign and domestic tourists. The growing influence of tourism without considering its effects can lead to the same destruction and problems as in developing countries. In the CEE countries people focus mostly on its positive aspects such as attraction for foreign investment or income and employment generation. However, they do not perceive the slow changes in the environment caused by the increasing tourism. The reason is that in contrast to economic crises, where mistakes become visible rather quickly, in environmental situations we are confronted with dynamics that change very gradually (Vatn, 2005). Vatn (2005) also stresses that beyond certain limits, the forces in motion are normally so large that it is often too late to respond. To the degree that we are only able to change institutions as a response to visible crises, this offers a rather pessimistic view of our future (ibid.). In the current situation of the transition countries the environmental problems are still 'invisible' for people because as Gatzweiler and Hagedorn (2002) pointed out, 'they simply have other problems', such as low incomes or declining social securities.

Such changes or disruptions affect not only the ecological systems but, since both the types of systems are interconnected, it may have consequential effects on the social system. Therefore, a major challenge is to develop institutional settings that secure both societal development and environmental assets for a long time into the future. How to secure the sustainability of SES? Is it the resilience or the robustness of the system that is more important for this type of sustainability?

In this chapter, we define our area of interest and characterize "robustness" in this context. However, we open the section by discussing the inconsistent use of terminology concerning the concepts of robustness and resilience in various disciplines. These concepts have different meanings to different scholars. For example, 'ecological resilience', 'engineering resilience' and 'social resilience' are all covered under the term 'resilience' (Holling, 1996; Adger, 2000; Read, 2005; etc). This chapter does not make an attempt to unify all such perspectives, or to establish general principles for resilience and robustness, but tries to identify general inconsistencies about the use of these terms in

various disciplines (engineering, ecology and social science) and discusses the use of these terminologies for the purpose of the analysis.

This chapter examines which of these terms is a more appropriate and useful characteristic for describing a socio-ecological system in the face of disturbances in the form of the economic and political transition process of the Central and Eastern European Countries and the consequent increased inflow of tourism to their national parks. As such, robustness is a more appropriate concept when trying to understand how SES can deal with long-term disruptions, however, has received little attention in the literature on SES. We argue that examination of the robustness of a SES is important especially in the face of slow enduring changes that might be 'invisible' or 'imperceptible' for the CEE population and thus possibly cause greater damage, especially where such changes may produce other changes, which act as triggers in other systems, generating further changes and repercussions (Hadfield and Seaton, 1999).

In this chapter, we propose a framework for socio-ecological systems that enables us to better focus on the structure of interactions between the components of a system. The framework will help to find the institutional vulnerabilities of socio-ecological systems in the face of slow enduring disturbances in order to identify the robustness of the systems. Following Ostrom (2007) and Anderies et al. (2004), the framework comprises four components: resources, resource users, resource infrastructure providers, and institutions. We posit that the links between resource users and public infrastructure providers and resources by means of institutional settings are the key variables affecting the robustness of socio-ecological systems. We argue that the structure of a system (institutional setting) can change, but without affecting the function of the system (social and ecological system) in order to absorb and adapt to the slow enduring changes and thus ensure its robustness. Institutional settings serve as the main ties between those elements and by affecting the equity, accountability and effectiveness thus influence the robustness of the system. In this context, structures – institutional settings – are not ends in themselves, but means to the functionality of a system (Stirling, 2007a) and thus boosters/inhibitors of its robustness. We will illustrate this framework on the case of Slovenský Raj National Park, using examples of the

problems caused by a disruption in these links as a result of increased numbers of tourists.

The chapter is structured into six sections, including this introduction. Section 3.2 highlights main differences between robustness and resilience and emphasizes the applicability of the term robustness in the face of slow enduring disturbances as critical issues in the CEEC. Section 3.3 presents a research framework to identify institutional vulnerabilities of SES based on equity, accountability and effectiveness. Section 3.4 describes the study area and the methods employed in the data collection. Section 3.5 outlines and discusses the results, deriving some lessons for improving the robustness of the area. Section 3.6 summarises and concludes the chapter.

3.2 Theoretical Framework: Robustness versus Resilience

In the past few years, the concepts of robustness and resilience have been the subject of growing interest and discussion in the natural, engineering and social scientific literature. Frequently those terms are used as equivalent or similar concepts, but sometimes their meanings are contested. Although there is a good reason for paying increased attention to these concepts especially due to the issue of the ability to absorb, adapt or benefit from the changes, different interpretations of what is meant by robustness and resilience can cause confusion.

3.2.1 Resistance versus Persistence

Different scientific disciplines adopt different interpretations of the terms robustness and resilience to fit their understanding and purpose (Walker et al., 2004). The concept of “robustness” has multiple, sometimes conflicting interpretations. In general, the study of robustness has focused on the ability of a system to maintain specified features when subject to assemblages of perturbations either internal or external. It is well developed in *engineering*, where it refers to the maintenance of a system’s performance (not its structure) either when subjected to external, unpredictable perturbations, or when there is uncertainty about the values of internal design parameters: in other words, the

maintenance of some desired system characteristics despite fluctuations in the behaviour of its component parts or its environment (Carlson and Doyle, 2002). Similar to robustness is the concept of ‘resilience’, and although it has developed in ecological literature (Holling, 1973), it is also used in *engineering*. Here, it focuses on the behaviour of a system close to a stable steady state and the ability and rate at which a system approaches equilibrium following a perturbation (Pimm, 1984; 1991; Tilman and Downing, 1994), or as Folke (2006) states, it concerns the resistance to a disturbance and change, conserving what you have. The resistance to disturbances is often addressed in terms of recovery, which is the speed or time it takes to return to a previous state. As an example of *engineering resilience*, Janssen and Anderies (2007) refer to a bridge close to its stable steady state. However, in this sense we would understand this term as to be robust rather than resilient. *Engineering resilience* therefore focuses on maintaining efficiency of function, constancy of the system, and a predictable world near a stable steady state (Folke, 2006).

A considerable body of literature on ecosystem resilience has also emphasized resilience as the capacity to absorb disturbances, or the buffer capacity that allows persistence. Originally, resilience was used in the field of population ecology and in the studies on managing ecosystems. According to Holling (1973) “[ecological] resilience determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb change of state variable, driving variables, and parameters, and still persist”. The main difference between the engineering and ecological definitions is that earlier one highlights the resistance in the face of a disturbance and the later describes the maintenance of a system’s function while experiencing a disturbance, or more precisely, persistence. In this sense, we use the term robustness as ecological resilience. Walker et al. (2006) uses a similar definition of ecological resilience, characterising it as the capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity. Raed (2005) gives an example of resilience where slim palm trees bend and remain standing even in the face of strong winds. Furthermore, the term *ecological resilience* also emphasises conditions far from any stable steady state, focusing on behaviour far from equilibrium to a multi-stable state, where the disturbance can shift the system to another set of variables and

relationships that dominate another stability domain (Holling, 1973; Janssen and Anderies, 2007; Folke, 2006).

3.2.2 Rigidity versus Transformability

Concerning resilience, there are at least two attributes to the definition. In the context of *socio-ecological systems*, resilience refers to the magnitude of disturbances that can be absorbed before a system changes to a radically different state, but moreover, it refers to the capacity to self-organise and the capacity for adaptation to emerging circumstances (Adger, 2006). The first aspect describes the amount of disturbances that can be absorbed before the dynamic equilibrium is changed completely (Adger, 2000). Carpenter et al. (2001) argue that resistance – the capacity to absorb high levels of pressure – is a complementary attribute of resilience. Folke (2006) calls this aspect buffer capacity or robustness and stresses that it is but one aspect of resilience. The latter focuses on the rate of regeneration from disturbances, or as Folke (2006) stresses, the importance of resilience is in the opportunities that the disturbances open up in terms of recombination of evolved structures and processes, renewal of the system and emergence of new trajectories. Furthermore, Carpenter et al. (2001) highlight another general feature of the definition that focuses on the degree to which the system can build and increase the capacity for learning and adaptation, related to the existence of a mechanism for the evolution of novelty and learning.

Before we stress highly the capacity for self-organization and renewal, it is important to mention that in complex systems such as SES, full recovery never occurs. Although the system may look similar, it is not the same system, because like any living system it is continuously developing. For these reasons, scholars involved in resilience in relation to complex adaptive systems increasingly avoid the use of recovery and prefer the concepts of renewal, regeneration and re-organization following disturbances (Folke, 2006). Following this idea, some of the components and attributes of the system maybe lost, according to the resilience approach, during a period of rapidly collapsing dynamics following a major perturbation (Carpenter et al., 2001). This is why the concept of resilience in relation to socio-ecological systems incorporates the idea of adaptation, learning and self-organization in addition to

the general ability to persist disturbances. Although such capacity can regenerate the socio-ecological system, some species or characteristics of the system might disappear. We think that sometimes to resist disturbances is much more important, for example for a culture or its traditions. An example is the vineyards in the Low Carpathian region in Slovakia, which have survived since the Roman Empire. Most of them are still maintained in the same way and the area is still used exclusively for the cultivation of grapes and wine production. They have resisted slow economic, social and political pressures. Thus to use the term robust is more appropriate for the Low Carpathian region.

In order to overcome confusion, we want to emphasize that the term resilience does not mean transformability, but on the other hand the term robustness does not mean rigidity. After a disturbance, a system may reorganize and retain the same regime, it may shift to a different regime, characterized by changes in feedback processes or changes in the scale on which the dominant processes operate, but with the state variables remaining the same; or it may transform to a new regime characterized by changes in scale, state variables, and feedbacks (Walker et al., 2006). However, in the last situation, we cannot talk about resilience but rather about transformability. Walker et al. (2004) define transformability as the capacity to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable. Resilience refers to a closely related set of systems, while transformability describes fundamentally altering the nature of the system. Transformability requires the emergence or development of a new kind of system, or a fundamentally new way of “making a living” (Walker et al., 2006). To illustrate such a transformation, we can mention the shift from cattle production in Lake District, UK, to wildlife-based tourism in the face of the foot-and-mouth disease shock. From the ecosystem point of view, when the disturbances lead to a structural change, when a clear lake will change to an algae-dominated lake, the system has shifted to and thus transformed to another stability domain (Janssen and Anderies, 2007). When talking about transformation and resilience, it is necessary to mention that resilience is not always a good thing. It may prove very difficult to transform a resilient but undesirable system from the current state into a more desirable one (Gunderson and Holling, 2002; Walker et al., 2004). However, in this situation the change is needed, and then effective

management requires overcoming the resilience in the system (Walker et al., 2004). Anderies (2005) pointed out that such an undesirable situation in ecological systems is usually created through attempts to maintain preferred social regimes such as salinized agricultural systems. A dictatorial political regime can also be resilient to revolutionary upheavals by means of strong military forces that can return the system back to the command-and-control structure. In such circumstances, transformative change leading to the creation of a fundamentally new system may be required (Walker et al., 2006). Although the transformation mechanisms are not well understood and require further research, they are not the focus of this article.

Although some authors stress that robustness is the capacity to resist without any change in the functions and structures, we argue that rigidity cannot be understood as a characteristic of robustness. Robustness does not mean that a system's structure cannot be changed. Also, Stirling (2007a) argues that the sustaining of particular structures under changing contexts might lead to an erosion of certain functions of a system and thus affect its existence. This might arguably be the case, for instance, with the sustaining of existing tourism infrastructure in the face of a changing market or political and economic situation. Tourist information boards in the CEE countries have only been in the languages of the respective countries, but that would not be sufficient after the borders opened. Sustaining the local inhabitants' income standards by attracting foreign visitors is only possible by making changes to the infrastructure. However, by changing the infrastructure the system will not lose its robustness. Quite to the contrary, the system will keep its robustness by adapting to the changing conditions without changing its functions.

3.2.3 Ecological Systems and Social Systems versus Socio-ecological Systems

The resilience and robustness perspective has begun to influence fields outside ecology. There have been numerous attempts to integrate the social dimension into resilience and robustness research. Adger (2000) argues that social resilience is the ability of human communities to withstand external shocks to their social infrastructure. Although he highlights the relation between ecological and social resilience, his approach focuses only on the ability of a social system

to adapt to shocks, ignoring the complexity of SES. Since the late 1980s, those concepts have increasingly been used in a great variety of interdisciplinary work concerned with the analysis of human-environment interactions (Janssen et al., 2006). This consistent focus on socio-ecological systems approach has created a potential for convergence and learning across research into resilience and robustness (Costanza et al., 1993; Gunderson et al., 1995; Gunderson and Holling, 2001; Folke, 2006). Both approaches deal with challenges to the scale. Anderies et al. (2003, 2004) distinguish between the undesirable alteration of a resource and the collapse of an entire SES. By robustness, they mean the ability of a SES to maintain its social and/or ecological domain of attraction on a particular time scale. Moreover, they require that both social and ecological systems collapse before they can classify a SES as collapsed. They focus mostly on the social aspect of the SES. This is clear from their suggestion, 'SES is robust if it prevents the ecological systems upon which it relies from moving into a new domain of attraction that cannot support a human population, or that will induce a transition that causes long-term human suffering' (ibid.). We argue that this is a controversial way of viewing the issue of SES. Focusing solely on supporting a social system might bring change to the ecological system. In the view of Anderies et al. (2003, 2004), the SES is robust only if the change in the ecological system does not influence the wealth of the social system. We understand their perspective in a way that a SES is robust even if an ecological system (forest) moves to a new domain of attraction (agricultural land) as long as it supports a human population. The persistence of the social system in the face of change of the ecological system is a very simplistic approach to SES robustness. We view a SES as an interconnect system and thus its robustness should be understood as its capacity to maintain its functions in the face of disturbances. Thus, if we restate the definition by Anderies et al. (2003), robustness is the ability of a SES to maintain its social and ecological domains of attraction in the face of disturbances. We argue that even if only one component function of the SES (either ecological or social) collapses, the system loses its robustness. When we view a SES as a complex system, we have to understand that any change in the function of one part of the system will automatically affect the functions of the other parts. As long as one part of the system is able to substitute or compensate for the lost part, the pattern of the

whole SES may appear 'normal' (Low et al., 2003). However, if the functions of the ecological system change due to a disturbance, it will sooner or later influence the functions of the social system.

There are a few scholars (Anderies, 2006; Anderies et al., 2003, 2004; Janssen, Anderies, 2007; Janssen et al., 2007) who prefer to use the term robustness as an equivalent to ecological resilience in their work focusing on SES. They argue that the reason for choosing the concept commonly used in engineering is their focus on human constructs and institutional rules designed by humans. Anderies et al. (2004) stress that it is difficult to apply the term resilience to systems in which some components are consciously designed. They argue that the resilience theory emphasizes the adaptive capacity of a system. Adaptability is understood as the capacity of actors in the system to influence or manage resilience (Walker et al., 2004). However, as Anderies et al. (2004) emphasize, it will be very difficult to design for adaptive capacity, and thus more appropriate to use term robustness when trying to understand how SES can deal with disturbances. However, there is no reason to assume that systems are either robust or resilient, and we do not want to abandon any of these concepts. The important point, however, is to recognize that both the terms are useful for study from different perspectives. The term resilience is applicable when dealing with sudden shocks (Stirling, 2007a) and thus the ability of the system to regenerate and learn, while the term robustness is useful when dealing with slow shifts (Stirling, 2007a) and thus the ability of the system to resist and adapt to these changes.

3.2.4 Shock versus Shift

According to the definition by Gunderson and Holling (2001), resilience is the capacity of a system to undergo disturbances and maintain its functions and control. In spite of several criticisms of using the concept of robustness in the resilience literature, as highlighted in the previous sections, we can use a similar definition of this term, where it is important to specify the type of disturbance.

Although changes in socio-ecological systems are mostly caused by the synergic effect of multiple and interacting disturbances and perturbations across

organisational, temporal and spatial scale, we argue that it is important to define the type of disturbance. Different terms are used for disturbances in different EU reports and frameworks (Millennium Ecosystem Assessment), and by different scholars (Alcamo et al., 2005; Alter-net, 2005; Berge et al., 1997; Gallopin, 2006; GIWA-EEA, 2001; Janssen et al., 2007; Meyer and Turner, 1992; Nelson et al., 2005; Stirling, 2007a), sometimes with different foci but often with different meanings. Most of these scholars, however, treat disturbances as negative forces to ecosystems and species caused only by human interference. Table 3-1 presents a few of them as used in literature on socio-ecological systems.

Table 3-1: Terms for and definitions of disturbances identified in literature on socio-ecological systems

The most common terms	Definition	Author
Perturbations		
	Major spikes in pressure	Turner et al., 2003
	External or internal processes interacting with the system and with the potentiality of including a significant transformation in the system; be it slow or sudden.	Gallopin, 2006
Disturbances		
	Any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment.	White, Pickett, 1985
	Unexpected and discrete variations.	Janssen et al., 2007
Shocks		
	Transient disruptions.	Stirling, 2007a
Stress		
	Continuous or slowly increasing pressure.	Turner et al., 2003
Stressors		
	This refers to abiotic or biotic variables that exceed their range of normal variation.	Vinebrooke et al., 2004
Shifts		
	Enduring pressures.	Stirling, 2007a
Hazards		
	Threats to a system comprised of perturbation and stress.	Turner et al., 2003
Variations		
	Regular and continuous changes (predictable and well-understood).	Janssen et al., 2007

One of the reasons for criticising robustness was that a system cannot be robust to all classes of disturbances (Janssen et al., 2007). All SES are potentially vulnerable to new disturbances in their environment (Janssen et al., 2007), especially to unpredictable, sudden and irregular shocks.

Here we would like to borrow an example from Read (2005), who sets out a definition of robustness versus resilience based on the model of a sycamore and a palm tree. The sycamore tree has evolved to resist the disturbances in the form of adverse weather (slow shifts) but will not be able to resist sudden

strong winds and might be uprooted and crash to the ground; on the other hand, the slim palm tree has developed the ability to bend without breaking and remain standing in the face of disturbances (sudden changes) such as strong winds and even hurricanes, but it will not be able to survive long-lasting adverse weather. The difference relates to the fact that the trunks of the two trees are built using different organic structures (Read, 2005). In the case of SES, institutional structures, for instance, may be interpreted as such organic structures.

As Stirling (2007a) pointed out, the strategies for maintaining system functions in the face of temporary perturbations (like strong storms in mountain areas) may be totally different from or even antagonistic to the strategies for maintaining system functions in the face of enduring pressure (increasing numbers of tourists in protected areas).

In the case of the sycamore and palm trees, each of them represents a distinct solution to the problem of resisting a different force. We admit that to use the example of two different trees is a simplistic approach, and by focusing on Read's article we do not want to assume that systems are either robust or resilient; rather, we want to highlight the fact that from the temporality point of view the system can be robust or resilient to two very different disturbances. We are talking either about longer-lasting disturbances, or strong and sudden shocks.

Since we do not want to measure the speed or rate at which the system returns to its 'equilibrium state' after a sudden shock as defined in engineering resilience literature, but we want to explore how the system can maintain its function while undergoing disturbances, we are using the term robustness as a capacity of the system to tolerate and deal with enduring perturbations (shifts). We also do not want to prefer robustness to resilience. Both robustness and resilience play a role in adaptation to the changing environment. Following the arguments of Stirling (2007a), we argue that robustness is equally important for long-term shifts in the system environment or for secular trends in the social framing of the system, while resilience is a vital capacity of the system for dealing with sudden natural economic or political changes.

What we want to emphasize is that robustness plays a much more prominent role than resilience in the context of CEE, more precisely in the area of the

Slovenský Raj National Park, where the economic and political transition process was followed by an increased tourism inflow to the national park and consequent slow environmental changes, without adequate strategies for maintaining the system functions (still de facto open-access regime).

While trees or any complex ecological systems have developed, through evolution, the capacity to adapt to slowly changing conditions, the SES in the CEE lack this ability, especially due to the fact that some of these changes/disturbances are not visible immediately, like for example the increased numbers of tourists with the slow negative consequences on both the ecological and social systems. However, although these physical changes occur, they do not acquire significance or create any considerable societal response until they are recognised as 'a problem' or 'an issue', that is, they enter into the process of appreciation (Hadfield and Seaton, 1999; Rammel et al., 2007). Sometimes society fails to recognize an impact until there are significant losses (Low et al., 2003). Not only is an individual's perception based on subjective judgement important, but this is also related to the appreciative system of the culture to which the individual belongs. Individual perceptions interact and co-evolve with those of the surrounding culture (Hadfield and Seaton, 1999).

In the CEE countries, most attention is paid to the adaptation to the visible crises, mostly economic in their nature. According to Vatn (2005), in contrast to economic crises, where mistakes become visible rather quickly, in the area of environment we are confronted with a dynamics that usually changes very gradually and where the forces are normally so large that it is often too late to react. Sometimes, for example, as human actions continue to erode a system, there comes a point where the buffering capacity of the system is lost, and society may become confronted with an undesirable change in the system (Low et al., 2003).

In the current situation in the transition countries, the environmental issues are 'invisible': people do not perceive environmental changes as crucial because as Gatzweiler and Hagedorn (2002) pointed out, 'they simply have other problems', such as low incomes or declining social security.

The problem with the increasing volume of tourism and its consequences for the environment is, on the one hand, challenged with scientific uncertainty and lack

of information. In the Slovenský Raj National Park, this problem and its consequences are further underestimated due to lack of research funding. It is not possible to provide conclusive evidence that tourists are a hazard to biodiversity or water. Even if the results of the research would show a correlation between the increased numbers of tourists and biodiversity loss, such correlation does not prove causality. The lack of evidence favours the tourist industry, which objects to any suggestions of limiting the numbers of tourists as interfering with the business. On the other hand, the results of the research are not made available to the general public in an adequate manner. There is still lack of participation and information exchange between state nature protection organizations and entrepreneurs and the public. This reinforces the general air of distrust and the unwillingness of local actors to co-operate with the Park Administration in any nature protection activities.

The physical effects may accumulate, but unless and until a trigger occurs which stimulates a major shift in collective perceptions, it will not lead to changes in policy, institutional arrangements or behaviour (Hadfield and Seaton, 1999). In the Slovenský Raj National Park the change caused by the increasing numbers of tourists is rather slow and the consequences are not yet clearly visible. The trigger has so far not occurred and the phenomenon has not become an 'issue' and thus has not stimulated any debate on the need for policy change. In order to overcome the pessimistic view of our future that we are only capable of changing institutions as a reaction to visible issues (Vatn, 2005), we argue that it is very important to focus – in line with the aim of this chapter – on the capacity of a system to deal with slow, sometimes imperceptible changes in the context of the CEE transition countries, thus enhancing its robustness. However, following our arguments from previous chapters, the system cannot stay rigid but has to adapt to these changing conditions without its social and ecological functions being transformed.

This review leads in turn to a further clarification necessary for any discussion of robustness. The simple characterisation of robustness and its importance for sustainability says nothing about the more specific configurations/strategies that may be important in order to develop or foster such a property, or to understand why some SES have persisted over long periods of time, withstanding a variety of enduring disturbances. It is for these further additional reasons that the next

part of this chapter will focus on the developing of a framework which can help us to understand which configurations contribute to the support of robustness as a means to achieving sustainability.

3.3 Framework for Analysing SES: Equity, Effectiveness and Accountability Means of Robustness

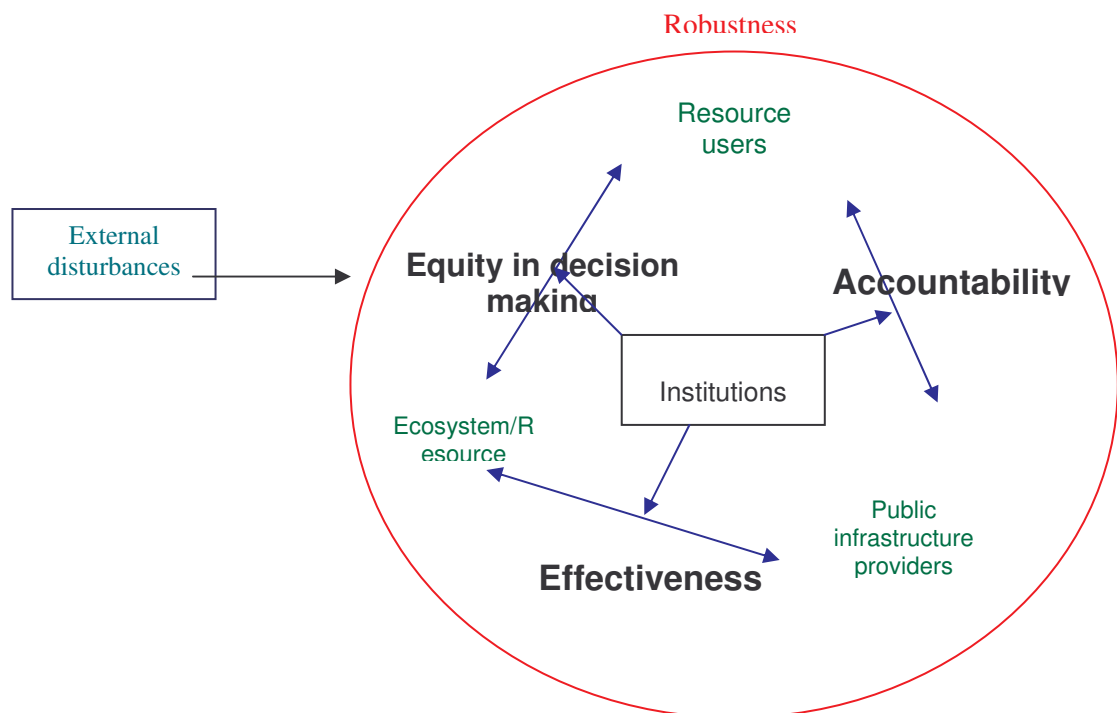
What affects the robustness of a SES? When is a SE system robust? Does a system become vulnerable because it is not able to adapt its structure to changing conditions? Or to the contrary, is it so because it has adapted and changed its structure so strongly that it has transformed its functions and thus completely changed itself? We argue that when a system is able to adapt to a slow enduring disturbance, it is able to adapt its structure without changing its functions. The structure of a system can be understood as the components of which the system is constituted. In the case of a rural tourist area system, it might comprise tourism facilities, actors' networks and organizations, government authorities, and their institutions such as rules, regulations, rights or management plans. Function, on the other hand, can be understood as a purpose which the system fulfils; it might be socio-economic or ecological. In this case, the function of the system might be viewed in terms of different services for the tourists and revenues for the actors (economic function), employment status (social function) and provision of wildlife habitat (ecosystem function). In order to sustain the ecological or socio-economic standards, it is necessary to change the institutional or actors' structure.

We argue that the securing of particular standards of social, economic and ecological functions is affected by a particular configuration of users, providers, resource systems, and institutional settings.

We propose to investigate the robustness of SES using the robustness framework developed by Anderies et al. (2004) to identify potential institutional vulnerabilities of socio-ecological systems in the face of slow enduring disturbances. The framework consists of a list of elements that are of key importance to understanding the robustness of a socio-ecological system (red oval box represent linked socio-ecological system - Fig. 3-1) – a resource, the resource users, public infrastructure providers, and public infrastructures (physical capital and institutional settings) (elements of SES in green - Fig. 3-1).

The innovation in this framework is to highlight the institutional configurations as a key element that affects the interactions among resources, resource users, and public infrastructure providers (rectangle box in the middle of Fig. 3-1). The main reason for highlighting the role of institutions in SES is that institutions determine the incentives and behaviour of humans, for instance the activities of a community, through which they influence the nature-society interaction itself, its consequences and feedbacks. We posit that the links between the resource users and the public infrastructure providers (society) and the resource (nature) by means of institutional settings are key variables affecting the robustness of the socio-ecological system and thus its functions (blue arrows in Fig. 3-1). Those links thus serve as the main strategies important for securing robustness: strategies that help to strengthen the robustness of the system in the face of slow enduring disturbances (rectangle box external to the SES - Fig. 3-1).

Figure 3-1: Robustness framework of socio-ecological systems



Based on Anderies et al., 2004

Since this chapter attempts to highlight the problems of robustness of SES induced by slow disturbances, it focuses particularly on the various institutional settings that can guarantee those strategies and thus different functions of the system. The modified version of the framework highlights the linkages between

SES and institutional settings as the key attributes regulating the interaction between the resource, its users and providers; moreover, they serve as key structures affecting the functions of the SES. To be able to react in the face of disturbances, actors need to understand who is accountable for what, they need secure equitable decision-making to get enough information about the disturbances and possible effects, and effective organization to be able to guarantee adaptation and buffering of the cumulative effect of disturbance and prevent the system from collapsing. All these strategies (accountable processes, equitable decisions and effective organizations) combined can boost the robustness of SES.

For the flexible decision to react in the face of slow disturbances it is important to include aspects such as who can be held accountable for it. Moreover, accountability helps to secure the binding outcome of any decision-making process and thus the successful co-operation between providers and users (Steelman and Ascher, 1997). Accountability is represented as the link between public infrastructure providers and resource users (blue arrow in Fig. 3-1). To secure this link, it is necessary to strive for coherent relationships between powerful organizations (institutional providers) and resource users by means of institutional settings. Without accountability, in uncertain and complex circumstances actors might not recognize the changes/disturbances and their consequences. Since accountability refers to the obligation to demonstrate and take responsibility for performance in the light of agreed expectations (Fitzpatrick, 2000), the actors have to hold official authority to carry out responsibilities including decisions and enforce those decisions, and competency concerning employees, technical capabilities and financial resources. In multi-actor situations, which frequently occur in Central European protected areas, effective accountability institutions can be particularly challenging to put in place. In such complex environments, it is necessary that the responsibilities and authorities be clearly defined. It has to be transparent who is responsible to whom and for what. A variety of other strategic factors might influence the accountability among multiple actors. Availability of information and trust go hand in hand with accountability (Jepson, 2005). In a situation where uncertainty and complexity pose particular challenges, accountability can guarantee to withstand and react to the disturbances. Accountability institutions

secures that the actors of the system will understand who should be responsible to react continuously to ongoing changes.

In summary, securing accountability institutions in multiple-actor situations might be viewed as a primary goal rather than a single element of decision-making. However, accountability is not an end in itself, but it is a means of supporting a higher level of social-political goals such as legitimacy, respect for rights and equity (McCall, 2003).

There are different views of what constitutes equity. It may represent fairness of outcomes both now and in the future— who benefits from development actions (Brown and Corbera, 2003). Sometimes equity of outcome may require distribution of outcome according to contribution, whereas at other times need or equality may be the most appropriate basis for equitable decisions in terms of their outcomes (Ostrom, 2005; Adger et al., 2003). Equity also concerns the participation of actors in decision-making, the acknowledgement and hearing of their concerns and the distribution of decision-making powers (Paavola and Adger, 2002; Adger et al., 2003; Brown and Corbera, 2003, Paavola, 2003). Unlike in distributional justice, equity in decision-making concerns procedural fairness. Procedural fairness is important because it can assure that different perspectives will be taken into account while making decisions. Brown and Corbera (2003) suggest a third element of equity: equity in access. Equity in access concerns the way in which individual actors are able to participate in emerging markets. Such access will depend on information, knowledge and communication.

This chapter highlights the importance of institutions for securing equity in decision-making for robustness of SES. Public infrastructure providers such as state organizations or other higher-level actors might have more scientific information and sources for identifying the consequences of various disturbances; on the other hand, local actors have local knowledge and information about the system and interactions within the system. Uncertainties generated by novel threats argue for the inclusion of a wider range of knowledge in decision-making (Dryzek, 1990). Inclusion in the process of decision-making and securing of fairness and equity in participation in order to contribute to sustainable development and robustness of SES have to be at least supported by fair and clearly defined rules and formal organisations

(Brown and Adger, 1994; Brown and Corbera, 2003). A fair decision-making process has to be guaranteed by a complex set of clearly defined institutions recognised not only *de jure* but also *de facto*. Not only property rights but specific rules such as rules for participation, co-ordination, partnership, collaboration and information management can serve as useful strategies to guarantee equity in decision-making.

The buffering capacity of a system, important for adaptation in the face of slow disturbances, also depends on the economic viability of the system. This depends on the interaction between the physical/technical capital, resource providers and institutional settings (blue arrow in Fig. 3-1). Typically, in neoclassical economics, the economic efficiency approach is often narrowly focused on welfare maximisation (Adger et al., 2003) and cost minimisation (Rammel and van den Bergh, 2003). Economic effectiveness shows a tendency to relate to the cost of achieving a given goal or to the outcome achievable at a given cost (Adger et al., 2003). However, to support the robustness of SES, the efficiency and effectiveness cannot rely on a single neoclassical economic perspective. The focus on efficiency instead of long-term effectiveness of the system—if realistic at all—is short-term and feeble: in other words, it sacrifices long-term stability for short-term ‘optimums’ and gains in efficiency (Rammel and van den Bergh, 2003). The neoclassical approach is based on the short-term success in increasing yield in a homogenous environment. However, in complex systems it is difficult to imagine how to test efficiency in appropriate ways (Low et al., 2003). The real world is not only about efficient performance but also about the capacity to adapt (Allen, 1990) to periods of changes, disturbances and crises. An increasing body of literature and empirical research shows that diversity of opportunities and systemic properties provides a capacity to enhance adaptivity in terms of buffering and reorganising after disturbances and changes (Rammel et al., 2007). It is fundamental system property that provides the potential to enhance adaptivity (Berkes et al., 2003; Berkes and Folke, 1998; Folke et al., 2002; Gunderson and Holling, 2002 and Rammel, van den Bergh, 2003; Stirling, 2005; Stirling, 2007a). Investing in adaptivity lowers the efficiency gains of today, while investing in efficiency reduces the chances to cope with tomorrows’ change (Rammel et al., 2007). From the evolutionary economic perspective, diversity is a key element of long-

term stability, compared to standard economic theory, which tends to decrease functional diversity in order to increase a specific and narrow meaning of efficiency (Schutz, 1999). Diversity is defined as different social and economic arrangements by which people organise their societies (O'Hara, 1995). Maintaining the diversity of a socio-economic system (diversity of sub-systems and system components), related to a wide range of activities, means of communication, formal institutions, legislation and informal rules, supports any future sustainable economy in terms of understanding and enhancing the mechanisms that maintain and conserve the ability to adapt to changing environments (Folke et al., 2002; Gallopin, 2006; Rammel et al., 2007). Diversity of sub-systems and system components (in our case diversity of tourist activities, facilities and rules) not only helps the system to reorganize after sudden shocks and surprises (Folke et al., 2002) but also to live with and permanently adjust to slow enduring changes and uncertainties. Having diverse structures within a complex system helps to insure against known and unknown risks (Low et al., 2003). If alternative options are diversely structured, they are less likely to be all swamped by the same external risk (Holling, 1978; Low et al., 2003).

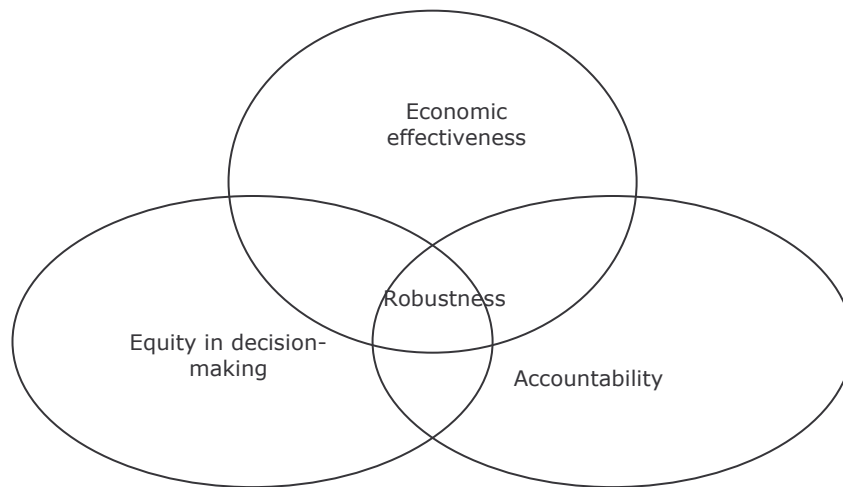
Focusing only on increasing efficiency without highlighting diversity of sub-systems and system components, the system will lose its ability to change adaptively and tackle emerging change and conflicts. Giampietro (1997) and Mayumi and Giampietro (2001) emphasize a different meaning of efficiency, which increases the capacity to adapt to changing conditions by amplifying the most performing activities, however without complete elimination of the obsolete ones. This approach will help the system to not only respond subsequently after the disturbance but to be prepared in advance and react continuously to ongoing changes.

The equity in decisions, accountability, and economic effectiveness of the system are thus central strategies supporting robustness (Figure 3-2). It is not possible to put more emphasis on the one or the other dimension. If accountability and effectiveness are reached, equity can still be questioned. In a similar perspective, supporting equity in a decision-making process does not seem to justify its lack of effectiveness (Adger et al., 2003). A pluralist analysis

of the robustness of SES can be achieved by paying simultaneous attention to each of these aspects (Figure 3-2).

In the next section, we exemplify these issues and demonstrate the usefulness of an interdisciplinary perspective by examining the robustness of a socio-ecological system. By being more explicit about the institutions securing these strategies and their respective strengths and weaknesses, the next section will discuss the roles they play in respect of the robustness of the Slovenský Raj National Park (SRNAP). We illustrate the problems caused by a disruption in the links between the components of the SES. We argue that the institutional setting (the structure of the system) has to be flexible and support these strategies in order to absorb and adapt to slow enduring changes. Hence, institutions are the central components linking the attributes of the SES and thus affecting the robustness of the socio-ecological system.

Figure 3-2: Links between robustness and the three necessary but individually insufficient properties



3.4 Data and Methods

3.4.1 Description of the Study Area and Problems of Evolution of Institutions as Responses to ‘Invisible’ Changes

Established in 1964 as the first Slovak Protected Landscape Area, changed in 1988 to a National Park), the Slovenský Raj National Park (SRNAP) is one of the oldest and the most unique protected area in Slovak Republic. It has

undergone unprecedented changes in tourism inflow over the last two decades. While in the late 1980s the numbers of tourists entering the area was below 400,000 per year, presently more than 600,000 visitors are coming to the park annually. In the most attractive valley called Sucha Bela the number of tourists reaches an average of 1,025 per day during the summer season, with the hourly maximum sometimes exceeding 500 visitors. From 1999 to 2000 the number of visitors in this part of the area increased by 5,500 (SOP, 2002). SRNAP is typical hiking area because of the high density of tourist trails at a total length of 275 km. The most attractive valleys and gorges are fitted with technical equipment like bridges, footbridges, ladders, side steps, and chains. The high-density trail system has resulted in considerable vegetation damage and soil erosion. Lots of tourists camp outside legal campsites and hike beyond tourist trails, drop litter or cut trees in order to make fire. Moreover, the presence of tourists has dramatically reduced the quality of water in the springs and rivers in the recent years. While in the early 1990s, the water from the autochthonous springs was high-quality drinking water, the spring water has been declared undrinkable by water authorities at the beginning of the 21st century. In the previous chapter, we highlighted the problem of the lack of motivation and preferences towards environmental protection, which was linked to the previous political regime where sustainability was of very low priority. In the SRNAP the issues of tourist pressure on the environment are not yet visible to the local stakeholders and thus no rules or norms have been evolved in reaction to these problems. Most of the actors do not realize that without adequate reaction, even slow and gradual disturbances can have considerable impact on the environment and subsequently on their own well-being. Thus, the current increasing numbers of tourists and the consequent pressure on the environment urgently require application of rules for sustainability and corresponding environmental policies and the evolution of institutions to deal with such crises and support the robustness of the system.

3.4.2 Research Methods

The research methods cover the gathering of both qualitative and quantitative data. For the qualitative data collection we used mostly in-depth interviews and the quantitative data was obtained from regional and local (municipal level)

statistics, existing reports by the Park Administration and local NGOs, a few theses and feasibility studies from the region; some of the quantitative information concerning the quality of the environment and the numbers of tourists was gained via personal communications.

As we already mentioned in Chapter 3.2.4, in our examination of robustness, we address the gradual increase in tourist inflow with an enduring impact on the SES of the SRNAP area. In order to highlight the problems and identify the vulnerabilities caused by this disturbance, we selected the actors for the interview according to a framework. This framework also helped us to identify the main interactions among the actors and thus we were able to structure the questions for interviews more easily.

Following our framework, where only two components are composed of humans, the interviews were organized into two main categories: the resource users and the public infrastructure providers. The former are individuals (tourists, private landowners, entrepreneurs) or groups of individuals (various co-operatives of landowners, associations of entrepreneurs) using and benefiting from the closeness of the national park, however their activities are limited by restrictions set by the Nature Protection Act. The latter are actors (municipalities situated within and around the park boundaries, the Park Administration, rescue services, fire brigades, and associations of municipalities mostly oriented towards tourism and local development in the park area) in the position of governmental authorities capable of imposing rules, monitoring and controlling the rules, generating income from entrance fees or capable of controlling access to the park. There may be a substantial overlap of these two types of entities as for example municipalities or associations of municipalities are also resource users.

We conducted in-depth interviews with the mayors of sixteen municipalities around the park, rescue services, fire brigades, the manager and several employees of the Park Administration, and statutory representatives of three associations of municipalities (Association of Municipalities of Slovenský Raj, Microregion Slovenský Raj – North, and Microregion Dobšiná). We also interviewed eight landowners, some of them offering or willing to participate in tourism-related activities, and statutory representatives of two associations of tourism entrepreneurs (Association of Slovenský Raj South, Association of

Entrepreneurs of Slovenský Raj). Moreover, we carried out 30 in-depth interviews with tourism entrepreneurs (guesthouse or hotel owners etc.) and another 20 with visitors to the park. In order to make it possible to explore more variables, themes and subjects within a specific real-life context, we attended two local actors' meetings related to the issues of tourism. Both these meetings were organized by the Park Administration.

The third element of the framework is a resource which is used by multiple resource users and governed by multiple public infrastructure providers. In this particular case, the resource is the park area and the surrounding region. The park area was analysed as a whole, including the parts where tourism is prohibited, and the surrounding region was defined as the area affected by the tourism related to the park.

It is part of our framework to highlight the key linkages/strategies within the SES that are of special importance with regard to robustness. Thus, the interview questions were structured according to three main themes related to the economic effectiveness of the system, equity and fairness to the actors in the decision-making and the accountability among the actors associated with the decision-making. However, those strategies/properties say only little about the specific institutional settings that may be established in order to develop or support such properties. Thus, we focused our questions on the way in which various institutional settings contribute to the development of these three system strategies and thus influence the robustness of the SES. Therefore, besides the actors' general perception of each of the strategies, we focused the questions on different institutional settings influencing the strategy, either as a barrier or a driving force.

3.5 Results and Discussion

3.5.1 Accountability

This section analyses the liability of the actors for decision-making, their authority and competences; and the transparency of rules chosen in the decision-making process within the national park. The park territory is under the authority of numerous mainly hierarchical authorities and is divided between more administrative units. The harmonisation with the EU legislation introduced

a shift of powers from former district offices to municipalities and the newly established elected regional governments, giving more power to the regional and local levels. Although the shift of powers to multiple authorities has the potential of increasing the role of actors from outside the formal decision-making boundaries and therefore greater participation in the governance process (Klúvánkóvá-Oravská and Chobotová, 2006), such multiple decision-making structures have a significant effect on the co-ordination of responsibilities. For instance, the general territorial powers presiding over the park are shared by 15 municipalities and two regional governments; specific powers are also wielded by several state organisations, such as the water management, fire and forest authorities and the Park Administration. The municipalities are the key social actors in the region regarding their decision-making power and their powers in the field of regional development, tourism and environmental protection. Several municipalities are the owners of the technical equipment (wooden and iron ladders and steps) necessary for passing through the park, and the entrances to the park are situated on their cadastral lands. Therefore, they play a strategic role as the only subjects practically in control of access to the park (Klúvánkóvá-Oravská and Chobotová, 2006). Municipalities wield powers in environmental protection and building permission. The Park Administration acts as the first contact point in rural development processes, serves as the expert government body for the management of protected areas, but paradoxically, it has only an advisory position to the hierarchical authority which formally makes the decisions (State Nature Conservancy and regional administrative units). This means that the management of nature and landscape issues is subordinated to regional administration (contrary to other Central European countries such as the Czech Republic and Poland). Although it acts within the legal framework, it can only provide its opinion, advice or suggestion. The Park Administration is effectively an administrative body without actual powers. Nevertheless, it is a professional state institution, controlled by the Ministry of the Environment of the Slovak Republic, responsible for the national park and the performance of the Nature Protection Act. The Park Administration has thus the main responsibility for nature protection, preserving biodiversity and national park conservation and

management, but it has no legal accountability for performing those responsibilities.

Firstly, the Administration of the Slovenský Raj National Park is not the owner of the park land and does not manage the state forests in the park area. After the political change in 1989, all land that had been seized by the socialist government in 1948 was returned to the previous owners (Table 3-2); currently large part of the land within the park is privately owned (Klúvanková-Oravská, 2002). Although state ownership comprises more than fifty percent of the area, the state land is under the responsibility of the Ministry of Agriculture.

Table 3-2: Land ownership in the Slovenský Raj National Park

Form of ownership	Area (ha)	% of total
State	10,338.90	57.72
Municipality	1,897.33	11.90
Church	2,662.05	14.86
Cities	1,896.89	10.59
Private	435.28	2.43
Other	446.44	2.50

Source: SRNAP, 1996

As the Park Manager stressed, ‘

It is difficult to govern territory which does not belong to you.’

Moreover, the State Nature Conservancy and the Ministry of the Environment do not deal with the actual problems in the park. The financing of the park from the state budget does not reflect the real needs such as the financial instruments for compensations for removal of opportunities for non-state owners within the park, inadequate personnel capacities, or decision-making powers. All Slovak national parks are financed only from the central state budget, compared to Polish, Hungarian or Czech national parks, which are co-financed from their management activities (tourism or timber harvesting). In SRNAP the funding for the park is stagnant. Although the number of the Park Administration employees has nearly doubled in the last 2-3 years, the personnel capacities are still not sufficient with respect to the size of the territory. This issue was also highlighted by the manager of the park:

'Having powers means having personnel, funding and materials, and this is very much underestimated, even though we now have 100 percent more employees than a few years ago'.

Decision-making competencies are still influenced by the hierarchical governance structure, where the Ministry of the Environment formally makes all the decisions. Due to a lack of funds, the Ministry of the Environment has forbidden the employees of the Park Administration to use vehicles at the weekends. However, during the breeding season of birds of prey, for example, the employees have to watch them throughout the week. Such hindered conditions make the management of the park even more difficult.

Decisions within the park are also influenced by the multiple ownership conditions. In the case of an emergency (storm or heavy rain), the Park Administration is responsible for protecting the tourists' health and the environment by closing the entrance to the particular valley. However, to close the valley, the Park Administration is obliged to get permission from the landowners, the owners of the technical equipment and the regional administrative unit.

'If there are trees fallen down on the tourist paths after a weekend storm, the bureaus only start to act at the beginning of the next week. Moreover, NGOs have a several weeks' time period to react. Such a long process can jeopardize not only the tourism but also the wildlife because tourists will walk outside the path.'

However, these co-ordination difficulties can be overcome by a so-called 'preliminary note' which allows the rescue service to close the valley due to a calamity or a natural disaster. The rescue service is only obliged to inform the owners and the Park Administration about its actions.

In such a complex environment of multiple resource users and several public infrastructure providers, accountability is becoming a very challenging issue. Pearce et al. (2005) stress that in complex systems responsibilities may become blurred, and that powerful players may take advantage of the situation:

'If the municipality wants to enforce something, it will do it even if the Park Administration would do not agree. Although the Park Administration has the legitimate right to say their stand, the municipality does not have to take it into consideration'.

'This area has no boss. Everybody wants to grab as much as they can.'

Moreover, several legal provisions contradict one another, especially those falling under the responsibility of the Ministry of Agriculture and particularly with respect to the forestry management⁶. This makes the management structure of Slovak nature conservation very complicated.

What is prohibited or limited under the Nature Protection Act, for instance some forestry activities, is mandatory under the Forests Act, in contradiction, for instance the processing of salvage felling timber; or the Forests Act allows walking on forest paths but it is prohibited in some zones under the Nature Protection Act.

When in such a contradictory environment the public infrastructure providers are not accountable to resource users concerning the policies and rules chosen, they may engage in opportunistic and strategic behaviour such as corruption or shirking (Ostrom et al, 1994). This is especially the case where the rules are not transparent: when it is not clear who is responsible to whom and for what. To secure accountability and transparency of chosen rules, information is important because different interpretation of rules can cause conflicts. Accountability does not only mean clearly defining responsibilities and authorities but also by what means individuals and organisations report to a recognised authority and are held responsible for their actions.

It is difficult to obtain information; the right hand does not know what the left one is doing, and the Park Administration does not have a clue about what the other actors are doing. In the past there was a reporting duty, records kept on each actor and building, reconstruction or change of the owner, but now this does not exist anymore.

As suggested by the manager of the park, regular monitoring of the fulfilment of any objective is the first step to guaranteeing a better understanding of each actor's responsibilities.

Can we meet our objectives? Is this the right path or we should change it? Is this path muddy? Should we go around? That's just a few questions we have to ask and then it will be clearer whether we are doing the right job or not.

An everyday understanding of accountability might be 'telling people what you've done' (Jepson, 2005). Accountability also refers to the extent to which

⁶ For example, the Nature Conservation Act (543/2002) declares the protection of nature as a fundamental priority within protected areas; however, the Forests Act (61/1977) allows timber production within areas of nature conservation, even providing subsidies for activities in areas with extreme climatic conditions (Kľuvánková-Oravská and Chobotová, 2007).

decisions are acceptable to the actors. It refers to the obligation to demonstrate and take responsibility for performance in the light of agreed expectations. There is no 'one best way' to promote accountability but to make decisions more transparent, one option is to develop opinion surveys as additional instruments of accountability. Participation is another strategy to secure that the whole decision-making process is more transparent.

3.5.2 Equity in Decision-making

This section analyses procedural fairness in a decision-making process. As mentioned in the previous chapter, participation can improve accountability. Participation and inclusion of several stakeholders may serve to legitimise the decision-making process and make it more accountable, however without the decisions reached being necessarily equitable (Adger et al., 2003). To support procedural equity in a decision-making process, participation should bring trust, communication and understanding, as equity does not only mean participation but also inclusion and negotiation of competing views (Brown and Corbera, 2003).

The Administration of the SRNAP, in particular, may find it difficult to justify their role as a nature protection authority when they lack direct democratic legitimacy and accountability. Despite these limitations, there are some grounds for optimism due to the increased effort of the Park Administration aiming at the inclusion of stakeholders in the decision-making process.

However, the forest owners in the park area still do not feel sufficiently involved in the decision-making process. As highlighted by the head of the forest co-operative:

'The Park Administration should co-operate more with the landowners, and should not behave as a superior body. Humanity and the ability to communicate are more powerful than acts of law.'

Moreover, some of the landowners are not interested in direct co-operation with the Park Administration and do not regard it as an equal partner. They argue that the Administration is not the owner of the land and thus has no right to decide about any course of action.

The contradictory acts of law and interests regarding access to and use of the land and the forest resources in the national park area spur local conflicts. Such a problem with contradictory rules sometimes even grows into interpersonal conflicts. Some of the actors claim that the park manager himself is responsible for those problems. Thus, any activity of the Park Administration is viewed as an effort to restrict any development in the park and to infringe on the local actors' rights. On the other hand, several actors blame Non-governmental Organizations (NGOs) and the bureaucratic procedures for giving the NGOs a better opportunity to participate in the decision-making process.

'Concerning elimination of calamities, the current legislation and rules do not allow us to act to solve the situation. I asked for calamity proceeding but three months later I still do not have permission. And I do not blame the Administration but the NGO VLK: they are always against everything we want to do on our land. Such timber is dangerous as it may cause a bark-beetle outbreak or even a fire outbreak. And the consequences may be catastrophic for our economic activities and in the case of fire also for the tourists.'

The local owners and other actors such as municipalities or tourism entrepreneurs regard state organizations and NGOs as 'outsiders', controlling their land and infringing on their rights. However, it should be noted that although the bottom-up approach is presented as an important path towards sustainable development, it has many constraints in the case of the national park. It is assumed that local management will lead to a better development and planning. This may not be the case of the CEE countries, which lack the experience, have lost the relationship to the land or lack funding. In such cases 'control by outsiders' is inevitable, but has to be exerted in a more equitable manner. The local-level approach should articulate with national top-down regulatory strategies.

As a result of these conflicts, the Park Administration is making a conscious effort to be involved in the decision-making with the other local actors; to move a few rungs higher on Arnstein's (1969) famous 'participatory ladder'. Their aim is to change the opportunity to have the right to give their opinion for the practical opportunity to play a more important and participatory role in the decision-making. Participation is thus not only related to accountability or legitimacy, but it supports equity and respect for people's rights (McCall, 2003). However, the level of 'tokenism' that allows to hear and to have a voice should

be replaced with a level where all affected actors can be engaged in a partnership (Arnstein, 1969).

As a first step to move higher on the ladder from the manipulation or therapy rung to informing and consultation (Arnstein, 1969), the Park Administration organizes local meetings. The aim is to get a better overview of planned activities and offer information to local actors. The actors can inform the Park Administration about their plans and activities and the Administration clarifies to them whether those activities are in compliance with the particular acts of law or rules. In the case of a controversy, the Administration discusses with the stakeholders possible changes or harmonisation with the current rules. Such co-operation and communication is thus not only the way to be heard but to jointly identify priorities, analyse the current status, assess alternatives, and act (McCall, 2003).

Another example of climbing the ladder towards successful participation in the decision-making process is the association of municipalities called the 'Microregion'. Any decision made is based on the consensus among all the members. Moreover, as a member of the Microregion (head of auditing committee), the Park Administration is invited to all decisions and thus is better informed about the actions planned within the national park.

Moreover, participation can help disseminate information and improve learning and mutual understanding. Learning can refer to understanding the position of the other actors affected as well as changing the perspective. Due to a lack of trust, the knowledge transfer in the SRNAP decision-making is still limited but it is being addressed. Although some local actors agree that the area of Slovenský Raj is protected as a national park, they lack a clear understanding of the importance of the obligations resulting from this status.

Accountability together with inclusion of actors into the decision-making process is what constitutes the heart of the 'democratic' component of democratic governance (Blair, 2000). As highlighted by many scholars, participation has the potential to build public support, increase the common understanding of various issues, and demonstrate that officials/public infrastructure providers are responsive and accountable.

3.5.3 Effectiveness

An effective SES should be able to perceive and respond to feedback in terms of establishing mutual and dynamic interactions within particular systems, among their evolving elements (Rammel et al., 2007). In order to understand the capacity of the SES to adapt to periods of disturbances and crises and how the effectiveness of the SRNAP contributes to the system robustness in the long run, this section focuses on the aspect of diversity of system components and sub-systems, particularly on how the existing institutions (rules and norms) deal with uncertainties and changes.

Long-term stability is enhanced by a differentiation in services provided (Parks and Ostrom, 1999), due to the increased levels of competition and of reliability (Low et al., 2003). Since the tourism in SRNAP focuses mostly on the summer and winter seasons, they may be seen as diverse. However, diversity of system components does not mean having two different tourism activities. In order to have a fully effective system, the diversity concept should display some combination of three basic properties: 'variety', 'balance' and 'disparity', where each property constitutes the other two (Stirling, 1994; Stirling, 2006; Stirling, 2007a). **Variety** represents a number of different categories; in the case of the SRNAP this can be a simple enumeration of products, tourist facilities or tourist activities, although such an enumeration may depend on the context and perspective: the factors which are taken into account, such as the spatial or temporal scale. For instance, understanding diversity in the field of tourism may reasonably refer not just to the number of different tourist activities (such as tourist paths, cycle paths, hotels or ski-slopes) in the park but their distribution throughout the region and their use throughout the year, meaning their spatial and temporal distribution. The SRNAP has the highest density of tourist trails of all the Slovak national parks (0.5 km of tourist paths per km² of the area), however most of them are concentrated in the northern part and the core zone while there are very few in the surrounding areas (78% in the core zone and 22% in the buffer zone).

'We would like to build a tourist path around the dam reservoir in the village. Not every tourist wants to hike in the gorges, for example families with kids would appreciate something simpler and closer to the village.'

'Tourist facilities should be placed in the surrounding villages not directly in the park. It is more sustainable and surely more profitable to the local actors to build a swimming pool with a geothermal spring in the village than to put a pub directly under the Tomasovsky vyhlad (rock formation in the core zone).'

In addition, most of the accommodation facilities offer no more than accommodation and breakfast. Tourists can use the ski-slopes in the winter and hike on tourist paths in the summer season. However, the visitors have few options during severe weather conditions. The average length of a visitor's stay in the SRNAP is 3-4 days. In order to increase the economic effectiveness of the SRNAP, there is a need for increasing the variability of the tourist activities, especially within the two high-peak tourist seasons, thus increasing the economic effect with an identical or even lower number of visitors.

'We should improve the diversity of the tourist services and extend the tourist season to cover the spring and the autumn.'

'The biological diversity of the park is great, but what we need is to diversify the tourist activities. But by increasing the number of tourist paths we do not improve the effectiveness, and there is a need to support activities in the off-season.'

Although several attempts are being made to increase the spatial distribution, some of them focus on the improvement of short-terms benefits. Thirty-two years ago, in July 1976, the most destructive forest fire broke out in the Kysel Nature Reserve and burnt down 29.22 ha of primeval forest. Since then the Kysel Valley has been out of bounds for tourists. Several actors have claimed that it has had a negative effect on their incomes and also on the quality of the environment due to increased tourist pressure on the other valleys.

'The only way out of from the over-visitation of some valleys is to open Kysel. We are trying to force the Park Administration to re-open the valley for visitors. If the valley was re-opened, the pressure on the other valleys would decrease.'

According to the Park Administration, re-opening of the valley Kysel is not possible. The Administration argues that the wildlife of the valley has not recovered yet and that the current environmental conditions (fallen rocks and trees) would not be attractive for tourists anymore. Moreover, the Park Manager stresses that the re-opening would not solve the visitor distribution issue. For a more effective distribution of visitors, he suggests building new tourist and cycle paths in the park's buffer zone and creating rules for regulation of the visitors.

However, as numerous actors have pointed out, the regulation cannot be in the form of limiting their numbers (by closing the valleys) but rather informative regulation: to take advantage of the potentials and capacities of the local actors, such as municipalities, associations, tourism entrepreneurs and the Park Administration, to direct and show other attractive options for leisure and relaxation. As was mentioned in Chapter 3.5.1, the municipalities are the most important subjects able to create appropriate rules and thus capable of controlling the access of tourists to the park.

Balance is another important aspect when looking at diversity of system components. It refers to the numerical apportionment. For instance, any economic portfolio (such as tourism) comprising a 90% contribution from one of three highly disparate resources might be judged less diverse than a portfolio comprising equal contributions from three less disparate options (Stirling, 2007b). In the case of the SRNAP, there are numerous possibilities for accommodation, leisure activities (e.g. hiking); additional services such as restaurants (good quality local restaurants) are very rarely presented. When developing tourism sector it is important to take into consideration balance. Only several restaurants for the whole area (in comparison with more than 400 accommodation possibilities in close proximity of the park) are not sufficient to supply tourism demand. The more equal would be possibilities for accommodation, leisure activities and restaurants, the more even is the balance, the greater is the diversity.

Although the study area has many options for tourism, the differences among them are not very big. Such low disparity also influences the overall diversity and thus the economic effectiveness of the area. Variety and balance cannot be addressed without first considering **disparity** (Stirling, 2007a). Multiple well-balanced activities must retain some disparity in order to make the most of the diversity. The tourism sector is less diverse if it comprises equal contributions of mass hiking, skiing or swimming possibilities than if it is an equal mix of guided, educational and mass activities. However, also guided and educational activities should be equally apportioned to rural, urban and park areas. The majority of those activities in the park area are mass tourism highly concentrated directly in the park. At the time of conducting the interviews, it was almost impossible to find entrepreneurs or other actors focusing for instance on

rural/agro tourism or offering eco-educational activities. Although the majority of the landowners in the area own mostly forest land, there are few owning agricultural land or pastures. Out of the eight interviewed landowners only one (the Vernar co-operative of landowners) claimed the willingness to organize rural tourist activities that would be different from the current activities offered by other actors. The Vernar co-operative owns 460 ha of land in the SRNAP. In the buffer zone and in close proximity of the park they have started to cut out a few hectares of young forest for pastures and to build shelters for tourists. In addition, they have elaborated a project for agro-tourist activities, such as cheese production, farm work and guided horse tours. However, one necessary condition to continue with the idea of rural/agro tourism as an alternative economic activity for the co-operative is to join the co-operative with the neighbouring Hranovnica agricultural co-operative. This other co-operative owns agricultural land and livestock. However, the first attempt at an integration of the two co-operatives has faded out due to a lack of communication and funding. The Vernar co-operative also points out a lack of interest by the municipality in developing municipal plans and programmes or applying for EU funds for alternative tourism programmes. As was also proved by the mayor, the main goal of the municipality is to support skiing activities in the winter season and in the current financial situation they do not want to focus on any other alternatives. Under effective economic management of the area, not only providers (such as municipalities) but also users (such as landowners or entrepreneurs) should focus more on diversified and disparate tourist activities. However, our results are not encouraging in this respect. While interviewing almost 30 tourism entrepreneurs in the park area, only two are offering rural tourist activities outside the park. Those are two farms offering horse rides and farm work. A variety of heterogeneous products (e.g. tourist services) in a heterogeneous consumer environment should be developed in order to successfully cope with the consumers' changing tastes and the changing political and economic environments (Low et al., 2003).

The capabilities of the municipality as the owner of the technical equipment, the rescue service or the Park Administration to close down a tourist path in the event of high pressure on the wildlife, visitor management plans, improved information provision by the tourist association concerning various tourist

alternatives, or a proposed zoning system: all those institutions (although some of them are not yet currently in use) might help the dispersion of tourists and their activities throughout the park area. The Nature Protection Act and visitor management plan are types of institutions that can influence disparity of tourist activities in the area. General such high-level rules and specific low-level rules are common in many governance systems (Low et al. 2003). The Nature Protection Act provides general principles and rules enforceable in national parks. However, the SRNAP visitor management plan, developed in co-operation with local actors, specifies and adapts rules for visitors in particular areas. Such lower-level rules, although seemingly duplicating the Nature Protection Act, are important for specific activities in the SRNAP. Generally, tourists are only allowed to walk on marked tourist paths in all national parks, but some of the paths in the SRNAP are only open to tourists in one way. Moreover, the SRNAP visitor management plan (low-level rule) also 'softens' the Nature Protection Act (high-level rule) in a way that specifies the areas where tourists can walk outside of the tourist paths without time limitation. Without this rule, the owners of the cottages in the park would not be able to get to their properties. However, before the visitor management plan entered into force, some actions which are now prohibited were allowed (e.g. climbing in particular sensitive areas of the park).

Under changing conditions such as increased numbers of tourists in the park area, institutions that allow diversity of alternative activities can add to the effectiveness and robustness of the system. Since the fall of the communist regime, new facilities (hotels), activities (proposed guided tours, which would limit the number of tourists but would not decrease the income for entrepreneurs, currently not yet in operation) and rules (visitor management plans) have been created as an adaptation to the increased numbers of tourists in the area. Thus, in the case of the SRNAP, not only new tourist paths, being one possibility to disperse tourists and reduce their impact on certain areas, but the institutions which allow a change to their dispersion are very important.

Diversity of different sub-systems and system components cannot be seen as a panacea for sustainability. There are various examples of very simple and non-diverse systems being extremely stable and durable. However, under conditions where unexpected events or surprises may occur, diversity almost certainly

enhances robustness. Thus, the institutions and strategies that recognize diversity are much less likely to be surprised by cumulative erosive and sometimes 'invisible' conditions.

3.6 Conclusions

This chapter has analysed the current institutional settings in the area of Slovenský Raj National Park, in order to find vulnerabilities in the face of long-term enduring disturbances. This chapter highlights the importance of robustness especially because of its ability to cope with those disturbances. Such disturbances are not visible immediately and as such do not create adequate societal response. Moreover, their cumulative effect can lead to significant losses and an undesirable collapse of the system. In the Slovenský Raj National Park, the disturbance in the form of increased numbers of tourists is rather a slow one and its consequences are not yet clearly visible and thus have not stimulated any debate for institutional and policy change.

It first compares the different definitions of robustness and resilience and highlights the main similarities and differences between them. The main characteristic of resilience is the capacity of the system to regenerate (Folke, 2006) and the capacity for learning and adaptation after disturbance (Carpenter et al., 2001). Robustness is characterized as the 'buffer capacity' to absorb and adapt to a high level of pressure. Such a characteristic is very important for a system to cope with disturbances and to be able to adapt without collapsing or changing its functions. Stirling (2007a) emphasizes robustness as a capacity of a system to tolerate and deal with enduring perturbations, while describing resilience as a capacity of a system to deal with sudden shocks.

In order to understand how robustness can be strengthened, we used the modified framework developed by Anderies et al. (2004). The framework consists of four main elements (a resource, the resource users, public infrastructure providers, and institutional settings), where the role of the institutions is especially highlighted. Institutional settings serve as the main ties between those elements and by affecting the equity, accountability and effectiveness thus influence the robustness of the system in the face of slow enduring disturbances. Within accountability, as a strategy to guarantee transparent decisions, we explored institutions that determine the

responsibilities of each actor in decision-making and thus help the system to recognize and react to disturbances. Equitable and participatory decision-making guaranteed by appropriate institutions improves learning and can help to bring local knowledge into the decision-making process and thus might reduce the uncertainty about the consequences of gradual disturbances. Finally, economic and institutional effectiveness of the system, understood as diversity of sub-systems and system components, helps to disperse the negative effects of disturbances and thus serve as a buffering capacity of the system important for adaptation in the face of slow enduring disturbances.

This chapter has exemplified these strategies on the example of the SRNAP and illustrated the problems caused by their disruption. We have found out that, in such a multiple actor situation, the responsibilities of the actors are not clearly defined. Moreover, several actors, although having profound responsibilities, do not hold the legal accountabilities for performing these responsibilities, either in the sense of an official authority carrying out responsibilities (park administration, land owners) or in the sense of powers concerning the employees or technical and financial resources (fire protection authorities, municipalities). Contradictory acts of law make the situation even more confusing. We have also found out that in such a complicated environment several actors actually lose sight of their core responsibilities or do not feel responsible for performing their duties. We have argued that institutions for more transparent decisions (such as regular monitoring and reporting), better information management and rules for co-operation between public infrastructure providers and resource users are critical to ensuring accountability and thus make the system more robust in the face of disturbances. Moreover, we found that rules for participation and cooperation can not only improve accountability among actors but also bring procedural equity to the decision-making process. Various co-operative activities and consultations organised by the Park Administration or the municipalities are helping to understand the actors' problems and enhancing mutual learning. Equitable decisions and co-operation can make the system better-prepared and vigilant towards disturbances and their consequences. An increased diversity of the tourist activities supported by general high level rules (the nature protection act, zoning system) and more specific low level rules (visitor management plan)

can help buffer the negative effect of the increasing numbers of tourists by dispersing and reducing their influence on sensitive areas. The majority of actors are interested in short-term benefits and efficiency, an orientation which tends to decrease diversity. Such an approach may reduce the chances to cope with long-term and sometimes unpredictable disturbances. Emerging equitable and co-operative decision-making can enhance accountability in the park. Moreover, a wide range of activities, means of communication, and formal and informal institutions can enhance the mechanisms that maintain the ability of the system to adapt to changing environments. Without flexible and diversified institutions that secure accountability, equity in decision-making and economic effectiveness of the system, the ability of the system to recognize and buffer the negative influences of cumulative long-term disturbances may be reduced. The robustness of the SRNAP might thus be endangered.

4 Exploring Robustness Options for Sustainable Tourism Development in Slovenský Raj National Park Using Multi-criteria Mapping

4.1 Introduction

As we highlighted in the previous chapter (3), sometimes societies fail to recognize changes or impacts of particular activities until there are significant losses (Low et al., 2003). Increasing impacts of tourism might be a similar issue. Here, the concept of robustness as the capacity of a system to deal with slow, enduring and sometimes imperceptible changes is very important. To ensure that a system will be robust in the long term, there is a need to focus on institutions that may be important in order to develop or foster such a property. However to find all possible institutional barriers and driving forces for long-term sustainability we need to explore future options and identify gaps, inconsistencies, dilemmas, uncertainties and indeterminacies of those different possible paths.

However, due to the degree of irreducible uncertainty that always exists in respect of how the dynamics of a socio-ecological system will unfold, this is a difficult task (Anderies et al., 2004). Socio-economic and biophysical systems are complex adaptive systems (Allen, 2001; Berkes and Folke, 2003; Giampietro, 2004). According to Anderies et al. (2004), a typical response to such problems has been to improve our understanding of the underlying complexity about which decisions have to be made, and thus reduce the uncertainty that decision-makers face. However, in real-world complexity, where many different possible channels of development exist, such a reductionist approach cannot yield any useful solutions. This challenge is particularly relevant when we turn to the complex environmental and socio-economic development issues. These issues raise questions about the ability of human societies to manage their activities in ways that address outstanding environmental and social threats (Robinson, 1990) and avoid or adapt to unexpected ones. Unpredictability is one important characteristic of complex systems. There is the dilemma that impacts of any decisions or actions are not known and cannot be predicted (Collingridge, 1980). In general therefore, there is always some hesitation about making predictions about the future

development of whole socio-ecological systems. Disturbances (floods, earthquakes, landslides, insect outbreaks, and climate change) and cultural and socio-economic changes (population increase, technological and economic change, depressions or inflations or political changes) (Janssen et al., 2003) are normal features of the development of socio-economic and biophysical systems. These processes of change are often unexpected and we are therefore ignorant about them before they occur (Berkhout et al., 2002).

We should be also aware that the future is fundamentally shaped by the past, where a path-dependent process takes place. More generally, evolving systems can get locked onto given paths of development, excluding a host of other, perhaps more desirable possibilities (Hodgson, 1993). However, path dependency does not imply determinism but rather that actors and actions are constrained by existing institutional settings, which favour some pathways over others (Stark, 1994). Under the conditions of path dependence, exploring a variety of different options before making a decision requires active policy making (Madlener and Stagl, 2005). This allows social forces to redesign the 'board' on which they are moving and reformulate the rules of the game (Nielsen et al., 1995). While constraining some pathways, this also creates opportunities and resources for new pathways (Williams and Baláž, 2002).

However, due to the uncertainty about the consequences of any action, it is difficult to identify one optimal solution for any set of goals. To deal with situations where decisions need to be made despite uncertainty, Funtowicz and Ravetz, (1991) suggest the inclusion of various stakeholders in participatory processes in deciding between different options. Moreover, a wide diversity of opinion about what the future will hold exists naturally. Indeed, since the outcome of future change will affect the material interests of different groups, the nature of the future is likely to be highly contested (Berkhout et al., 2002). There is an irreducible conflict between non-equivalent perspectives and interests of different groups when deciding what common comparative term should be used to measure and eventually rank alternative actions (here: different tourism development). Martinez-Alier et al. (1998) call this 'weak comparability of values'. This is clearly demonstrated in our case where a

multiple ownership structure⁷ resulting in various conflicting responses to resource overuse, illegal activities in the park or the ignoring of several legal provisions. The current problems with tourism and the environment in the Slovak Republic, particularly in its national parks, are twofold. Firstly, there are complex and heterogeneous conflicts of interests and values concerning the future development strategies, which have hitherto produced no effective dialogue. Hence, an effective structuring of the tourism development problems is an essential task, so that eventual negotiations among actors can have a better chance of a positive outcome. Secondly, most of the aspects of the particular problems are attempted to be captured and resolved using a single perspective (mostly an economic one focusing on short-term benefits), without taking into account other dimensions affecting the quality of our lives and those of future generations.

To cope with those characteristics of such complex systems (unpredictability, discontinuity, path dependence and uncertainty), Berkhout et al. (2002) suggest that 'the future' needs to be thought of as being emergent and only partially knowable; that many possible futures need to be considered, and that legitimately diverse opinions may exist about them. In such cases, the need for techniques of analysis, which take into account a pluralistic approach, the multidimensional nature of the reality, reflexivity, transparency and a greater accessibility to wider participation is particularly evident.

Multi-criteria approaches can match these requirements. From a variety of techniques of multi-criteria appraisal, this chapter combines a scenario-building approach with deliberative multi-criteria mapping introduced by Stirling and Mayer (1999), and argues that this synthesis provides a useful, transparent, accessible, and open-ended methodological framework for exploring the possible future opportunities and paths for sustainable development in the area of Slovenský Raj National Park.

The aim of the exercise is to identify and appraise different paths of sustainable tourism development for protecting the natural values of the National Park and

⁷ In SRNAP the general territorial powers presiding over the park are shared by 15 municipalities and two regional governments; specific power are wielded by several state organizations, such as the water management, fire and forest authorities. The Nature Conservation Administration lacks any legal power but is responsible for preserving the biodiversity, and thus is heavily limited in carrying out its responsibilities. As a result, unique park territories have been seriously affected by fire and/or by uncontrolled numbers of visitors.

for generating economic and social benefits for the region. The aim of this chapter is to identify preferred development **scenarios** with regard to tourism development in the study area and the necessary changes in the institutional arrangements in relation to these scenarios, and to illustrate how the region can move towards robust and sustainable rural development.

- Identify which alternative paths of sustainable tourism development for the study area based on the concept of robustness can be conceived.
- Drawing upon local driving forces (people's attitudes, perceptions and priorities regarding socio-economic and ecological issues, nature of governance) and external factors (national and European level – Slovakia's economic trends, European future rural development policy), construct scenarios describing how these goals might be achieved.
- Use these scenarios to identify the potential institutional vulnerabilities of the preferred ways.

The chapter is structured as follows: After a general introduction (Section 4.1), Section 4.2 introduces the scenario-building approach and the deliberative multi-criteria mapping (MCM) method and the benefits of their combination. Section 4.3 provides a description and an overview of the key issues of the study area together with an introduction to the research methods. Section 4.4 brings a detailed explanation of the steps of the MCM process in the Slovenský Raj National Park. Discussion of the results follows in Section 4.5. Section 4.6 concludes the chapter. Finally, Section 4.7 deals with the main limitations of the study.

4.2 Theoretical Framework: Combining the Scenario-building Approach with MCM for Sustainable Tourism Development

4.2.1 Scenario-building Approach

Although the future cannot be predicted, exploration of the future can inform the decisions of the present. The more uncertain and long-term the consequences of a present-day decision, and the more vulnerable the organization to these changes, the greater the need to formalize the process of exploring and thinking about the future. Berkhout and Herdin (2002) point out the importance of

thinking about the future, as it is intrinsic to all decision-making as it is not possible to make a decision without considering what may be the future consequences of that decision. Furthermore, the appropriateness of a decision and its consequences, given possibly changed future conditions, also needs to be taken into account. In particular, it is possible to consider early signs of new contextual trends, to plan possible responses and develop ways to adapt (Berkhout and Herdin, 2002).

In the more complex and uncertain world in which political, economic and environmental conditions are perceived to change more rapidly, scenario planning can play this role (Berkhout and Herdin, 2002). Scenarios have come into widespread use in the last decades because they permit a broader analysis than a formalized prognosis methodology (Dreborg, 1996).

Moreover, scenarios can also serve as a tool to learn about current problems and assess policies to resolve them. The process of scenario planning places under scrutiny the assumption underlying a strategic decision and can avoid carrying the risk of negative effects over the long term (Berkhout and Hertin, 2002)

Berkhout and Hertin (2002) defined scenarios as plausible representations of the future based on sets of internally consistent assumptions, either about relationships and processes of change or about desired end-states.

Scenarios include the depiction of an initial state, usually situated in the present, and/or a final state at a fixed time horizon (Jungermann, 1985). However, scenarios are not static snapshots of future states; rather, they are dynamic movies that consist of a logical sequence of images of the future. The scenarios not only contain sequences of such images, but they also include the driving forces, events and actions that lead to the future conditions as visualized in the images of the future (Rotmans et al., 2000). Ideally, scenarios should be internally consistent, plausible and recognizable stories exploring paths into the future (Anastasi, 1997).

With reference to Rotmans et al. (2000), we understand scenario-building as projection of the future; so, the value of scenarios does not lie in their capacity to predict the future, but in their ability to provide insights into the present.

Scenarios cannot predict, but they draw pictures of possible futures and explore the different outcomes associated with 'what-if' questions (Greeuw et al., 2000). Despite the characteristics of socio-economic and biophysical systems, the common goal of future studies has been to predict the most likely future state of the system being studied (Robinson, 1990; Rotmans et al., 2000), and the traditional forecasting approach is still dominant (Dreborg, 1996). The majority of recent scenario studies can be characterized as explanatory or forecasting scenarios. Forecasting scenarios explore alternative developments, starting from the current situation. Forecasting assumes that the future is essentially defined as a continuation of the past. Forecasting scenarios explore alternative developments, starting from the current situation with or without expected/desired policy efforts. They usually offer different possibilities, stating whether these are desirable or not.

Several authors have recognized that in the real world, with a high level of uncertainty and complexity, the use of forecasting scenarios is limited due to predicted character of this approach (Smil, 2000; Berkhout and Hertin, 2002; Robinson, 1990; Robinson, 2003; Dreborg, 1996; Hojer and Mattsson, 2000; Wegener, 1996). Factors such as discontinuity, path dependence and uncertainty do not make it impossible to say anything meaningful about future possibilities but they do seriously compromise our ability to predict the likelihood of alternative outcomes for complex human systems (Robinson, 2003). Another reason why forecasting has been treated with so much skepticism is that, in spite of these well-known difficulties in making forecasts, a forecast in the public debate may very well be misapprehended as the truth and thus become self-fulfilling (Hojer and Mattsson, 2000). Where there is a high degree of uncertainty, unpredictable changes can threaten the idea of trying to extrapolate existing trends in to the distant future (Dreborg, 1996). Robinson (1990; 2003) pointed out that even if we could predict the long-term future accurately, we do not want a simple prediction but rather indicators of what alternative futures seem available and what their characteristics are. Moreover, our main goal is to focus on the problem to be solved rather than on current trends. In investigating possible solutions to rural development problems, such as sustainable tourism, we often focus on desirable futures (in terms of fitting certain environmental restrictions), what they might look like, and how we could reach them.

This process requires an analysis of the changes that have to occur, the decisions that are required, and the restrictions that would be applied (Hojer and Mattsson, 2000). That is why it is important to shift from forecasting approaches—explaining the future through data and relationships of the past—to exploratory and prospective approaches that provide a mechanism for searching for potential discontinuities (Berkhout et al., 2002). Such a stream of scenario work termed ‘backcasting’, is focused on envisioning desirable futures, in order to stimulate discussions on how to get there (Raskin et al., 2004), and can serve as a basis for public discussion about development policy. Images of the future may widen the perspective of many actors (Dreborg, 1996) and help them envisage the concept of robustness and sustainable rural development.

This approach has been criticized by some scholars (Berkhout et al., 2002) in that it can overemphasize the capacity of actors to influence the future. However, a backcasting study is not meant to form the basis for a single, big decision, nor is it a plan or a blueprint (Dreborg, 1996). Such backcasting scenarios reason from a desired future situation and offer a number of different strategies to reach that situation. It is essential that the studies provide alternative images of the future. Thus it is possible to explore different pathways of change and decision points that might lead to the desired future. If used in a clever way, backcasting can be helpful in opening eyes to overlooked options (Hojer and Mattsson, 2000).

This approach avoids prediction, seeking instead to explore alternative possible futures and challenge tacit assumptions about the future, in order to promote policies that are more robust in the face of future uncertainties (McDowall and Eames, 2006). The advantage of this approach is not in their ability to predict but because they show how important societal problems can be solved. Starting with desirable futures, they try to show a way to reach these goals, mainly by policy measures (Dreborg, 1996). Hojer and Mattsson (2000) pointed out the importance of the backcasting approach in a situation where current trends are leading towards an unfavorable state and where conventional paths do not seem to solve the problem. This is especially true if, as is typically the case of rural areas with many ecological, social and economic problems, we wish to analyze how certain trends could be broken and how an unfavorable situation could lead to a more desirable future.

As Robinson (2003) indicates, undertaking non-predictive analysis is problematic. Analysis is always based on individual predictive calculations (e.g., the likely effect of a change in the numbers of tourists, in biodiversity loss or in co-operation); the overall goal is to indicate something about the range of possible outcomes and their consequences, and the general purpose of the analysis is not to predict the most likely future state of the system but to assess the feasibility and desirability of different outcomes.

Backcasting scenarios explore the paths that need to be taken to arrive at desirable future situations and are thus normative by nature. Normative scenarios take values and interests of different social actors into account. Thus, in addition to providing insights into how long-term goals might be reached, this approach offers a common framework for different social actors within the area to address critical issues and concerns.

The development of any scenario involves both rational analysis and subjective judgement. It therefore requires interactive and participative methods and involves, to varying degrees, expertise, creativity and interaction. More formal, often quantitative techniques based on expert knowledge include impact assessment, modelling or expert consensus methods. Less formal approaches include interactive methods such as participatory workshops or conferences. Creative exercise includes brainstorming and scenario writing (Berkhout and Hertin, 2002). However, an appropriate balancing of methods and the interaction between participatory and expert-based scenario-building techniques is desirable and that effort should be made to establish links between them (Berkhout and Hertin, 2002).

Scenarios have the potential to translate expert opinion into a format comprehensible also to non-experts and so to stimulate the debate between the expert community and the public (Wegener, 1993). Also, Berkhout and Hertin (2002) point out the importance of the participative nature of future thinking, reflecting on the need to make explicit and to challenge the ideas of many people through a structured process and to synthesize the results in scenario narratives and thus improve the quality of the scenario exercise. It can give us an opportunity to see which alliances might be built towards this desirable path and the roles that different social actors may play in this process.

Participatory methods refer to approaches in which non-scientists, such as policy makers, stakeholders and/or lay people play an active role. The use of participatory approaches in scenario development is advocated with the argument that complementary heterogeneity in perspectives, expertise and knowledge is needed to guarantee sufficient 'richness'.

We decided to use the scenario-building approach as a tool to face the current problems, opportunities and related uncertainties of the future rural development of the study area. Such an approach is a useful tool to identify gaps, inconsistencies, dilemmas, uncertainties and indeterminacies that prevail in the area on both the local and higher scales and to understand the complexity of the possible futures. Or, as Rotmass et al. (2000) pointed out it helps us to articulate our key considerations and assumptions, but by doing so it also helps to identify constraints and dilemmas. The backcasting approach is relevant for our situation because it is possible to identify the current rural development situation in the National Park area as problematic when the existing institutional arrangements, governance structure and level of co-operation make little difference to the rural development situation. With a backcasting perspective, we can identify different possibilities of tourism development and nature protection which could lead to the sustainable and robust path. The task would then be to try to find out what changes in the current conditions could make rural development options more relevant (Hojer and Mattsson, 2000).

4.2.2 Multi-criteria Approach

If backcasting is to be more than just wishful thinking, it is important that the feasibility of the scenarios be analyzed and that necessary measures and actions for the realization of the scenarios be identified. Once one or more scenarios have been identified that could lead from the current state to a desirable future, it is time to analyze the consequences of these pathways in various respects and the drivers that may influence their realization (Hojer and Mattsson, 2000) without effort to identify the best one. Another reason to evaluate scenarios is to identify key decision points and policy recommendations (McDowall and Eames, 2006).

This implies a need for an open and transparent process that recognizes both the significant uncertainties involved in long-term futures and the differing perspectives, values, and framings of the debate. A wide variety of techniques has been used in environmental policy and decision-making appraisal, most of them using monetary measures (travel cost, hedonic pricing, contingent valuation etc.). Those techniques have been advocated for their ability to take into account votes expressed on the market by the whole population (Funtowicz et al., 1999), where money is treated as natural common language, and therefore appropriate for adoption and use by all actors in any environmental or social issue (Funtowicz and Ravetz, 1994).

However, these traditional approaches such as cost-benefit analysis are criticized for their effort to substitute and financially compensate for natural resources or cultural heritage (Munda, 2006a; Munda, 2006b) and thus to treat all (environmental) goods as market commodities, their inability to deal with divergent values (Munda, 2004; Giampietro et al., 2006) and insufficiency of treatment of uncertainty and complexity (Munda, 1996; Stirling, 1999b; Stirling and Mayer, 1999).

To avoid full monetarization, quantification of environmental values and thereby a commodification of environmental goods, multi-criteria evaluation (MCE) can serve as an alternative method. Moreover, to avoid the pitfalls of the technocratic approach, MCE techniques can be combined with participatory processes. The advantages and usefulness of MCE methods can be broadly grouped into those concerned with their ability to deal with incommensurability of values (Munda, 1995; O'Neil, 1997; Funtowicz et al., 1999; Munda, 2006a), and transparency in their using and integration into the decision-making process (Roy, 1985; Munda, 2004).

When dealing with any ecological or social –decision-making problem, there are always conflicts among actors and groups of actors in terms of the different values and interests they hold. Thus, every decision-making problem has to be studied in a multidimensional perspective, across a wide range of mutually incommensurable values (Stirling, 1997). Multi-criteria evaluation uses the concept of incommensurability of values, where there is an irreducible value conflict when deciding what common comparative measure should be used to rank different alternative actions (Martinez-Alier et al. 1998; O'Neil, 1993;

Munda, 2004). To recognize the irreducible complexity of the issues at stake and different concepts of value, one has to accept that the monetary price as a measure is only one aspect of value and one perspective among several and thus cannot be used as a single one-dimensional standard (Funtowicz and Ravetz, 1994).

However, the MCE approach can be criticized if used based on the priorities and preferences of some decision-makers only (Funtowicz et al., 1999; Munda, 2004). Therefore, in order to maintain the quality and transparency of the evaluation process and to support and recognize the plurality of legitimate perspectives, there is a need for an extension of the peer community (Funtowicz and Ravetz, 1994; De Marchi and Ravetz, 2001; Munda, 2004). In order to avoid hidden political or power influence, the dialog between various actors (such as lay persons, scientists, representatives of industries/governments, etc.) should focus rather on the quality of the process and not solely on identifying the best solution or option. Various methods such as stakeholder multi-criteria decision aid (SMCDA), participative multi-criteria evaluation (PMCE), incorporate the importance of actors in the process. Although participation is a necessary condition, it is not a sufficient one (Munda, 2004).

According to Munda (2004), the evaluation process, proposed as social multi-criteria evaluation (SMCE), should reflect participation, negotiation and learning. From this perspective, SMCE can be described as a dynamic and flexible process which helps actors (decision-makers or any interest groups or individuals) to define and understand the problem, comparing the relative performance of different alternatives according to evaluation criteria, and to reflect and explore the key determinants of the resulting picture of performance due to the continuous feedback loops among these steps.

A typical multi-criteria problem (with a discrete number of alternatives) may be described in the following way: A is a finite set of n feasible actions (or alternatives); m is the number of evaluation criteria which are considered relevant in a decision-making problem. In this way, the decision-making problem may be represented in a tabular or matrix form (Munda et al., 1994; Munda, 1995; Janssen, Munda, 1999; Giampietro et al., 2006). The impacts

(scores) of each alternative on each criterion can be based on cardinal (money, time) or ordinal (scenery) measures.

Many multi-criteria methods involve ranking of various criteria; that is, assigning weights. They can be used as trade-offs or simply as coefficients of importance. The former is focusing on commensurability, the latter on weak commensurability/incommensurability and non-compensability. The coefficient of importance measures how much more important a criterion is compared to another without implying that an increased amount of the less-valued criterion can compensate for the loss related to the higher-valued one (Vatn, 2005). For compensatory multi-criteria methods, compensability would imply that an excellent performance in the economic dimension could justify a very bad performance in the other dimension (Munda, 2006b). The method where commensurability and compensability are assumed – the multi-attribute utility theory (MAUT) – based on concepts of rational decision-making and utility theory, occupies a core position. It uses an aggregating procedure where a single value of the different alternatives involved is computed and thus the ranking of them can be made according to a one-dimensional criterion (Nijkamp et al., 1990). If weights are understood as coefficients of importance and not as trade-offs, it implies that the aggregation procedure should be a non-compensatory mathematical algorithm. Examples include the ‘outranking methods’ of ELECTRE (‘elimination et choix traduisant la realite’) or PROMETHEE (‘preference ranking organization method for enrichment evaluation’) (Roy, 1990; Munda, 1995). The aim is to identify compromise solutions by using an algorithm where alternatives are compared in pairs for each criterion (Stagl, 2004). The threshold must be defined to identify when alternatives are better or worse on each criterion. These methods try to find an alternative that both scores well on prioritised criteria and does not perform too badly on criteria where it is still dominated by other alternatives (Vatn, 2005). In order to overcome the problems with assigning the cardinal weights, Munda (1995) developed a method (Novel Approach to Imprecise Assessment and Decision Environments - NAIADE), which is extended by fuzzy numbers and by a linguistic variable (Stagl, 2004).

According to Munda (2006b), due to Arrow's impossibility theorem (it is impossible both democratically and consistently to aggregate individual preferences in a plural society (Arrow, 1963), it is impossible to develop a perfect multi-criteria aggregation procedure. However, when one wishes to use multi-criteria methods, the following properties are desirable: there is a need to avoid reducing a complex multi-dimensional reality to a representation by means of a single uni-dimensional index (to avoid using a single aggregate function), partial or complete non-compensability is essential (to avoid the idea that the increasing performance of one criterion can compensate bad performance of another criterion), and to avoid non-transparency and inaccessibility to wide public participation (to avoid subordination of wider social priorities to the narrow fundamental subjectivity of the appraisal); and the method should emphasise simplicity – to use as few parameters as possible (Stirling, 1999; Stagl, 2004; Vatn, 2005; Munda, 2006b; Munda, 2008). Since none of the most commonly used multi-criteria methods presents all properties considered desirable, multi-criteria techniques can be used rather as a 'heuristic' way of exploring the key dimensions and uncertainties of various channels of development.

4.2.3 Multi-criteria Mapping

Multi-criteria evaluation techniques serve as a tool to help decision-makers and the general public understand the multi-perspective nature of the problem and shape their priorities through the appraisal process; it can thus be used as a way of mere '*mapping*' of different development options against multiple perspectives, without trying to search for the optimal best solution. This approach, developed at SPRU (Science and Technology Policy Research) at the University of Sussex (Stirling, 1997; Stirling and Mayer, 2001), is called *multi-criteria mapping* (MCM). The aim of this method is to *explore* the way in which different pictures of strategic choices may change, depending on the view that is taken – not to *prescribe* a particular 'best choice' (Stirling, 2005). As Stirling and Mayer (1999) pointed out, it is merely a 'mapping exercise' because the results are expressed in terms of sensitivities and conclusions are drawn only conditionally, by reference to the clearly-defined perspectives taken by different participants.

Multi-criteria mapping has been widely used in the field of technology (particularly energy sectors; McDowall and Eames, 2006), agricultural biotechnology (Genetically Modified Organism (GMO); Stirling and Mayer, 1999) and the healthcare sector (xenotransplantation - Davies et al., 2003; obesity – Lobstein and Millstone, 2006). This is its first application in the field of tourism and rural development on the local scale concerning the development of a particular area, namely a national park.

The primary advantage of MCM lies in its transparency and open-ended approach to the problem framing. The evaluation is not a single act; it takes place as a process where the surrounding circumstances are continuously changing and the objectives, alternatives and impacts may present sudden changes. Thus the evaluation process cannot be considered definite; it has to be flexible and adaptive in nature (Stirling, 1997; Funtowicz and Ravetz, 1994; Stagl, 2004; Giampietro et al., 2006). Such a cyclic process allows a transparent representation of the problem, a mutual exchange of arguments and information and thus incorporation of the involved actors' learning.

Another advantage of MCM is its ability to deal with the unreliability of proposed data and information. The scoring of each option under each criterion is a technical component of the appraisal. However, to justify the scores, accurate assessment is necessary. Due to the uncertainty, such precise information and data are unavailable most of the time. As evident from Stirling (1997) and Stagl and Stirling (2006) a large variability in the data and the range of values exists in the assessment of costs or externalities in energy sector. MCM enables the researcher to express uncertainty, variability and sensitivity by assigning both optimistic and pessimistic scores to each option under each criterion. Such an approach, where ranks lie within a range of values, refers to the role of incomplete knowledge and context-specific dependencies (Stirling, 1997; Stirling, 2005). MCM differs from other techniques in its use of a simple linear additive weighting approach, based on the weighted average of option performance.

$$r_i = \sum_c s_{ic} \cdot W_c$$

where r_i is the multi-criteria performance rank of option i under the set of appraisal criteria, s_{ic} is the performance score of option i under criterion c , and

w_c is the importance weight of criterion c (Stirling, 1997). Such a procedure, simple compared to other multi-criteria methods, which use much more complex algorithms, does not try to identify a unique and 'objectively optimal' solution. Such a degree of simplicity represents a deliberate choice, reflecting the heuristic rather than prescriptive approach (Stirling and Mayer, 1999). Stirling and Mayer (1999) also argue that none of the multi-criteria techniques may claim an adequate and fully appropriate solution to the problem of weights and aggregation. So, the loss of simplicity and transparency might not be worth the marginal improvement in fidelity (Stirling and Mayer, 1999).

The next section describes how a participatory multi-criteria tool was selected and adapted for use in this chapter for different tourism development futures for the area of Slovenský Raj National Park (for a detailed description of the MCM steps, see Chapter 4.4).

4.3 Data and Methods

4.3.1 Problem Statement and Description of the Study Area

Natural resources management is characterized by conflicts between various users resulting from the presence of a strong competition among interest groups. In the national parks in the Slovak Republic, increasing numbers of tourists, demand for tourist services, and pressure on investment result in competing and conflicting interest. The economic situation of the Slovenský Raj National Park area is considered disadvantaged. Due to poor infrastructure and geographical barriers, development in the area is unattractive for foreign investors in most economic sectors. However, due to the lack of other economic opportunities, there has recent been some expansion of (mostly mass) tourism. The economics and the short-term perspective in the area is in conflict with the nature protection purpose of the national park. The Slovenský Raj National Park is characterised by high habitat and species diversity due to its temperature inversion, typical in gorges, which results in a unique inversion of plant and animal communities. The limestone rocky habitats and grassland habitats are absolutely unique. The highest number of species per square metre (74 species) in Central Europe was recorded in the park's Kopanec location. The most valuable natural aspect of the park is the relief, which comprises a

compact eroded benchland with a plateau cut by deep canyons, waterfalls and small rivers, making it scenic and of high tourism value. As the natural environment is an important attraction for tourists, and at the same time tourism has the potential to damage the environmental quality, protected areas play an important role in environmental protection and are thus a major attraction for tourists. On the one hand, the existence of the Slovenský Raj National Park represents an obstacle for strong economic development in the region, but on the other hand it brings important income from tourism (LIFE 2004). In the recent decades, conflicts over economic and environmental interests have become a key issue in the area. As highlighted in the previous chapters (2 and 3), nature protection was of very low priority in the early post-socialistic period, both due to the newly opened market and thanks to the decreased pollution pressure on the environment in that period. Although the current intensifying economic development in and around the park poses several environmental threats, most of them (e.g., the increased numbers of tourists) have not yet stimulated any debate aimed at institutional, policy and behaviour change. The permanent condition of difference and different interests between the so-called ‘conservationists’ and ‘developers’ may become a real conflict when the cumulative effect of the slow disturbances causes severe and often unavoidable changes in the system. The main challenge for the multiple actors and interest groups in the Slovenský Raj NP is to find a common language and try to understand and explore possible future paths and necessary changes. All possible paths have to be evaluated and explored according to a broad set of criteria, including the economic, social and ecological dimensions. However, transparency and a participatory approach are necessary aspects fostering trust and mutual learning of the multiple actors involved in the issue.

4.3.2 Research Methods

This chapter describes the participatory construction of future scenarios and the deliberative multi-criteria mapping appraisal of these different futures for the region, while taking into account the local driving forces and external factors. After completion of the scenarios, future key issues and potential vulnerabilities of the scenarios are analysed by applying the multi-criteria mapping technique; this includes necessary changes in the institutional arrangements in relation to

these different futures and an exploration of policies that need to be implemented to boost the forces that favour a more sustainable development. In this process, both the scenario-building approach and MCM method were adopted for deliberative use with local actors. Generally, the degree of deliberation, limited to relevant specialists in the scenario-building approach, was extended to include local actors. The scenario-building approach was chosen due to its capacity for including a multitude of ideas, which were then structured by clustering and prioritising them, ultimately leading to so-called story lines. Most existing MCM studies only identify simple options (Stirling and Mayer, 1999) resulting possibly in better clarity but at the same time, such simplicity may obscure linkages between various factors of the options. However, identifying full scenarios may help actors understand how sequences of events are linked in a logical and consistent manner. Moreover, in the past the technical part of the MCM method (the scoring) drew on the participants' (experts') knowledge and/or was supplemented by data from different studies. In our research, we adopted the approach where specialists from different disciplines were interviewed as established professionals from the various scientific disciplines prior to the interviews with local stakeholders. This helped local stakeholders, who usually do not have enough technical data to appraise the scenarios.

We started by specifying, together with relevant actors, the desirable end-state of the future development and then worked backwards up different paths that might lead to that state. This is the typical approach in generating backcasting scenarios. The aim was to open a discussion around how different development options might meet the objectives of a robust socio-ecological system. The focus is not on promoting or refusing one scenario or another, but rather to use them for highlighting issues and uncertainties that surround the future development of a robust system in the study area. The scenario development process followed the procedure of the 'Shaping actors – Shaping factors' approach because it involves selection of the main 'actors' and 'factors' shaping the future events (Bertrand et al. 1999). We organized and carried out the scenario building between April 2005 and May 2006 with the collaboration of

local actors; the design encompassed a combination of desk research, literature review, personal interviews and a participatory workshop.

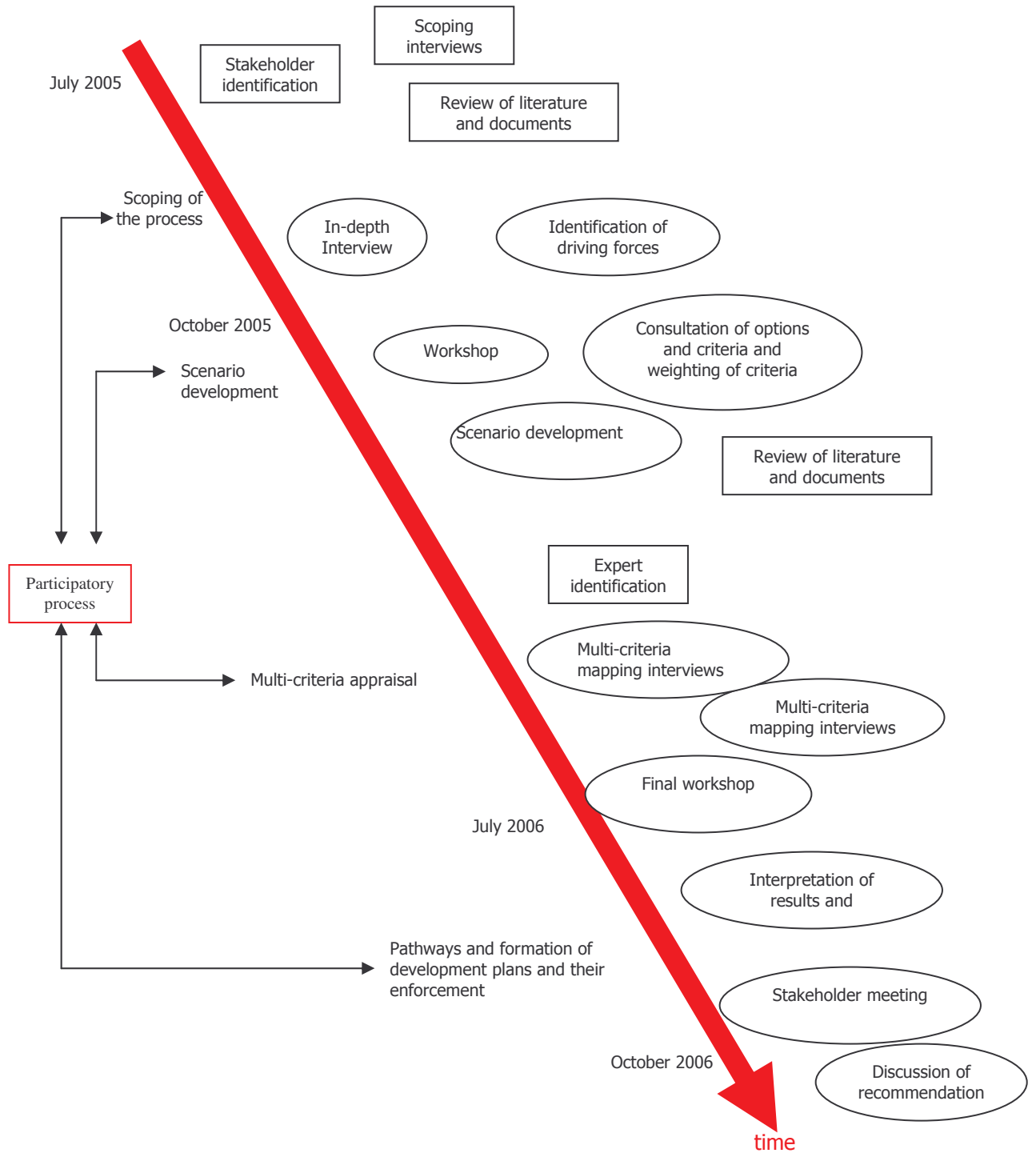
The scenario development procedure consisted of two main stages. The first one involved the development of theme-specific options. The method involved a bottom-up approach, where we took into account the local context, the position of the multiple actors within the community, and the social actors' knowledge and information by means of in-depth interviews in order to identify key issues in the National Park area. It was decided to use a two-dimensional matrix: an approach that has been used commonly in scenario building. The desk research helped us to obtain insights into the external driving forces that prevail in the study area at present. Based on the output of the in-depth interviews (local forces: peoples' perceptions and priorities regarding the nature of governance, co-operation and decision-making) along with the insights gained from the literature (external factors - national and European levels), we developed four options for the future development of the study area with an emphasis on the concept of robustness.

The options were validated by means of the participatory workshop. During the workshop, the basic options were distributed among the actors, which enabled them to understand the past and the current problems (based on our desk research). One of the important outcomes of the workshop was a common discussion of the proposed options a consultation to ensure that the initial options covered a broad enough range of possible rural and tourism development futures. The next step was to identify and develop one additional option in order to raise the actors' awareness about the issues and problems in the Slovenský Raj National Park and the need for exploring collaborative opportunities for the tourism development in the area. Another important aim of the workshop was to agree on the core robustness criteria under which to appraise these scenarios.

In the second step, we modified these options into consistent and coherent scenarios. The five scenarios for the future development of the Slovenský Raj National Park are qualitative in that they communicate their message by means of narratives, also called story lines. The story line of each scenario describes in a coherent way how future events might evolve based on the relationship between the key issues identified in the area and the external and internal

driving forces, while reflecting the different knowledge, understanding, beliefs, hopes and dreams of those participating in the scenario development process (Raskin et al., 2004). The story lines of each scenario were constructed and defined by a research team based on the robustness framework of the socio-ecological system in order to achieve a degree of comparability between the scenarios.

The MCM process itself continued with tape-recorded interviews with individual experts and actors, followed by analysing the results and presenting them again to the actors. This type of comprehensive and cyclic evaluation process can be very effective since it accomplishes the goals of being trans-disciplinary (with respect to the research team) and also participatory (with respect to the local community) (De Marchi et al., 2000). Figure 4-1 summarises how the deliberative/participatory process integrates the MCM and scenario development processes into a single coherent approach. Red arrow indicates time scale of the process (July 2005 – October 2006). Each stage will be discussed in turn below. Process elements in oval boxes involved the participation of actors and/or experts.

Figure: 4-1: Overview of the process

McDowall and Eames (2006), own adaptation

4.4 The MCM Participatory Process in the Slovenský Raj National Park

4.4.1 Scoping of the Process

The integration of external developments and local driving forces is one of the challenges of constructing scenarios about the future development for the Slovenský Raj National Park area. We focused on the regional development from different perspectives. Doll and Petschel-Held (2002), while discussing the scale issue in scenario development, recognize that larger-scale developments have an impact on the spatial unit of interest for which the story line is written. Therefore, the Slovenský Raj pathways were conceived in a constrained fashion, fitting into the developments on the larger scale (national and European levels). While external forces can be strong, local driving forces and social actors in rural development also play a crucial role in the future of the area.

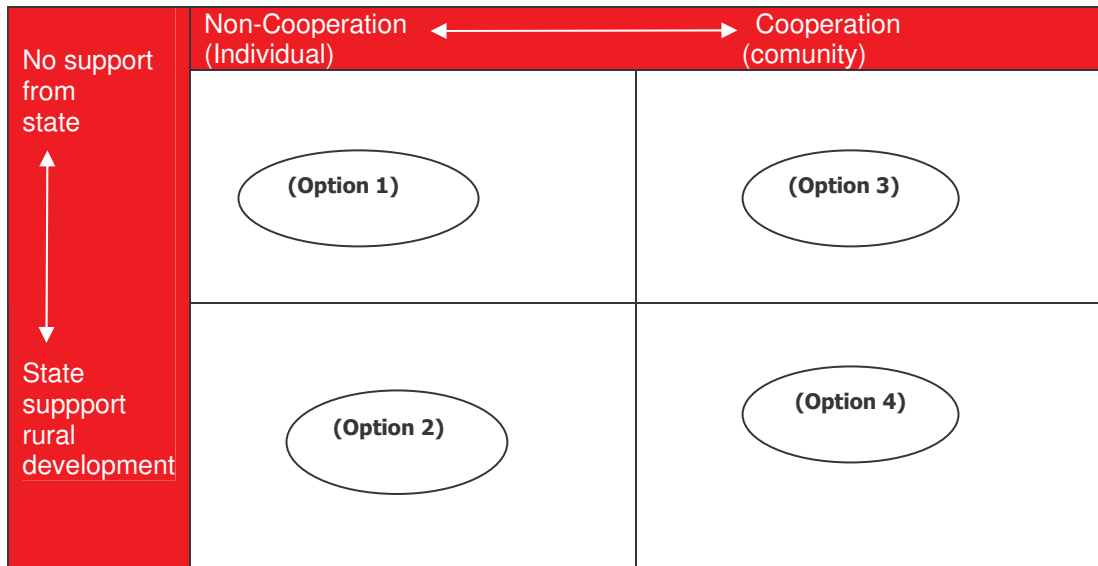
Identification of the Driving Forces

There are several ways of identifying driving force for scenarios development; mostly this is done by the research team, based on the analysis of existing documents, reviews of appropriate literature and discussion with relevant specialists. However, we did not want to rely merely on secondary data: we wanted to have plentiful input from local actors from the very beginning. To gain local knowledge and ensure both the legitimacy and the high value of the outcome, we applied a bottom-up process of identifying local driving forces for the scenarios by means of in-depth interviews and from our own observations. This approach helped us identify additional actors later on in the research procedure. The basic task of the participant observer is to observe the people in the unit of enquiry, while working with them. This enables local actors to address any issues that they feel to be usually neglected in real decision-making situations. The combination of interviews and observation techniques helps avoid possible biases of the 'insider perspective' (De Marchi et al., 2000). This triangulation of methods increases the reliability of the data and serves to support the data gathered from other sources.

Interviews

In the course of May, August and September 2005, we conducted 43 in-depth interviews with actors representing the National Park area, mostly municipalities, associations of municipalities, land owners, park administration, fire brigades, rescue service, tourist agencies, information agencies, tourism entrepreneurs, associations focussing on tourism, and visitors to the park). According to Alcamo (2001), each scenario should have a main theme or message, based on the main uncertainties or questions about the future. The aim of the interviewing process was to identify the views and needs of all possible affected subjects of tourism development and nature protection in the National Park area. In the interviewing process, we attempted to find out the main uncertainties/questions regarding trends of development in the Slovenský Raj National Park area.

Drawing upon of the insights and information from the interviews, we identified two key themes, which created the basic differentiation among the scenarios: the role of the state in the development of the area and the degree and type of co-operation between the social actors. Those two main themes, based on the main uncertainties and questions that were observed by means of the in-depth interviews with actors, were assumed to drive the development in different directions and displayed on a two-dimensional matrix with four quadrants (Figure 4-2). According to Hertin et al. (1999), two axes were well understood and used by the participants in the scenario-building exercises, being neither too narrow nor too prescriptive. This is important since the value of the scenarios as 'learning machines' depends on their capacity to bind together the mental maps of diverse communities and to enable them to imagine alternative futures collaboratively (Berkhout et al, 2002). Such a matrix can be useful regarding the number of scenarios that should be used. Berkhout and Hertin (2002) pointed out that two scenarios are usually seen as being overly narrow, approaches with three story lines are criticised because they often lead to the identification of the 'best guess', and the use of more than four scenarios appears to be unmanageable in a shorter planning exercise. Figure 4-2 shows the selection of sketches for the four basic options. The options are differentiated according to the role of the state in supporting rural development and the degree of co-operation among the social actors.

Figure 4-2: The dimensions on which four options are initially differentiated

There are obvious connections between the role of the state and the degree of co-operation among the stakeholders; they are both linked to the type of governance and they influence the development of the region. Although we take these dimensions to be independent in this scenario framework, we intend to highlight the role of all the social actors (including the state organizations), and point out the possible different governance structures in the area.

The role of the state in supporting rural development (the vertical dimension of the Figure 4-2) does not rely only on financial support but also on the legitimisation of actors to take part in the decision-making process. New European official policy statements now emphasize the role of partnerships and networks beyond the formal structure of governance (notably in the Cork Declaration, and more recently in the Rural Development Regulation 2007-2013), characterized by informal social systems rather than by bureaucratic structures. The concept implies that governance has become more complex and multilevel, partially usurping competencies from the central State (Jessop, 1995) and relying on networks of interconnected actors rather than a hierarchy dominated and defined by the State (Stoker, 1998). It asserts that this type of governance, using various social mechanisms other than authority, bureaucratic rules, standardization, or legal resources, enhance co-operative behaviour and at the same time enable local actors to organize collective arrangements that

will promote their locality in an increasingly competitive local economy (Goodwin, 1998). Through the interviews in the area, local actors identified a widespread lack of communication and co-operation between the key actors and the consequent difficulties in the development and implementation of rural policies and alternative economic programmes requiring multi-level co-operation among actors. However, enhanced co-ordination and co-operation among various actors was identified in some cases. The actors pointed out that such a process is very important and especially in a situation where the state or actors from different hierarchical levels are willing to participate in joint action with local actors. The role of the state and co-operation which is based not only on formal structures seem to be very significant to the actors in respect of the development of the region.

The harmonization with the EU legislation introduced a shift in competencies from former district authorities to municipalities and the newly established elected regional governments and thus, the governance structures may rely on networks of multi-level interconnected actors such as private, public and non-profit units. The horizontal 'co-operation' dimension (Figure 4-2) describes the level of co-operation among various actors and the means by which the co-operation is organized. At the one end of the spectrum, co-operation still relates to the exercise of responsibilities by means of formalized institutions. It can also be characterized by individualistic behaviour or competing, mostly economic interests or formalized co-operative rules applied exclusively within each group. At the other end, the political authority is no longer associated with a relation of subordination and one-way control (state/hierarchy) but with a set of flatly operating systems where institutions and individuals are interlocked in multiple, reciprocal relations of autonomy and dependence (Bang, 2003). Those are voluntary groupings of individual or collective actors, whose actions are based mainly on informal rules and where the character and intensity of co-operation is rapidly growing.

Desk Research

The insights into external driving forces were complemented by desk research. The European Scenarios 2010 project of the European Commission (Bertrand et al., 1999), the Cork Declaration and the Rural Development Regulation 2007-

2013 were reviewed for possible developments in Europe. Based on these existing scenarios and on policy statements and studies conducted in Slovakia at the national level (National Development Plan, National Strategy for Tourism, Sectoral Operational Programme for Industry and Services, Sectoral Operational Programme for Rural Development, NATURA 2000), the following trends were identified as the most significant for the regional and local-level future development: economic development trends, tourism trends, nature protection trends, and rural development trends. They are oriented on the most significant current problems and issues regarding the development of the country. Our intention was to summarize those main issues and identify the possible external driving forces for the different paths in order to achieve an integrated development in the area.

Economic Development Trends

The Central and Eastern European countries have undergone unprecedented political and economic changes since the fall of the Berlin wall in 1989 and most of them have made considerable progress in the area of economic reform. Starting from a low base, Slovakia's industry and services sectors are in a continual process of restructuring to adjust to the competitive global environment. Research and innovation are at a low level, yet there is a potential for development and growth as the country capitalizes on foreign direct investment made to date, and modernizes production methods with the aim of creating greater value added for export. In the longer term, the trends will seek to focus on continued industrial restructuring. Due to the short programming period, the focus will be on modernization of firms with a preference for Small and Medium Enterprises (SME's) and funding to develop tourism.

The Sectoral Operational Programme (SOP) for Industry and Services has been drawn up in accordance with the goals, strategies and priorities of the National Development Plan of the Slovak Republic, the related operational programmes, and the requirements of NUTS II regional self-governments. The directions defined by the European Commission in line with EU industrial and regional policy were taken into account while formulating the development strategy of The Sectoral Operational Program.

The key strategic objective of the Industry and Services SOP is the growth of competitiveness of the country's industry and services. Currently, most exports from Slovakia are based on price competitiveness of non-sophisticated products. This SOP will support those business activities, but with the global objective of developing a specialization in more sophisticated products with a higher added value. These will be export-oriented, and a gradual increase in local sourcing will be sought. Attention will be paid to maintaining and enhancing the sectoral diversification of the economic base in order to encourage regional stability and increase the attractiveness to foreign and local investors. This requires support for the development of a scientific and research base, for establishing the prerequisites for clustering within growth poles, and for the development of high-technology companies and information and consultancy centres.

The first priority of this OP is directed at a growth in the competitiveness of the domestic industry and services. It is focused on development of SMEs, although investment will also be made in larger companies. This priority also envisages involvement in the private sector development process through provision of business infrastructures (business incubators, industrial parks, land development, and IT connections). This is necessary to attract new investment and expand existing investment. Within this priority there are several measures⁸, which push forward a priority during a shortened programming period. For new businesses and those individuals interested in starting a new business it is proposed that the measure 'Support to new and existing enterprises and services' will support the establishment and development of firms. Support to the development of SMEs will be focused on business projects (e.g., building or reconstruction of manufacturing halls, purchase of real estate for manufacturing areas, purchase of new technologies, etc.) that have the capacity to create or maintain jobs. The goal of the measure 'Support to the building and reconstruction of infrastructures' is to allow the public sector to provide for business development in the field of industry and services, to increase employment and quality of life in regions. The aim is the utilization of

⁸ The measures are formulated so that they account for the needs and opportunities resulting from the macroeconomic analyses listed in the NDP SR and analyses of the economic situation of individual sectors conducted in the SOP I&S.

currently unoccupied premises for new business activities through the building of industrial parks and incubators.

The second priority of this SOP will focus on tourism development. Tourist facilities and promotion are not well developed in the country, even though Slovakia has an attractive and varied countryside, a considerable potential for activity holidays, and a wealth of cultural heritage. Tourism is generally considered to be the sector of the future with regard to the multiplying effects accompanying its development (SOP, 2003).

Tourism and the related sectors represent approximately 7% of the GDP formation and employment in the Slovak Republic. The proposed tourism development will concentrate on increasing the foreign exchange revenues, increasing the GDP formation and state budget revenues and thus contributing to a stabilization and creation of new employment opportunities and development of SMEs (SOP, 2003). The measure 'Support to the building and reconstruction of tourist infrastructures' within this priority aims to enable the public sector to support business development in tourism, to increase the employment and the standard of living in the regions. It is important to make the regions and locations more attractive for an inflow of investment capital by building and improving complex tourist centres. The goal of the second measure 'Support to business activities in tourism' is to boost competitiveness in tourist services fostering investment and non-investment activities, especially the construction of new and modernization of existing tourist facilities (e.g., accommodation and catering facilities, renovation of spas, complementary and sports services, outdoor swimming pools, ski lifts, parking lots, etc.).

The Slovak industrial policy, like the EU industrial policy, is of a horizontal character and intends to increase the competitiveness of the sector. The tools of the Slovak industrial policy aim at creating the framework conditions for businesses so that they can pursue their initiatives, use their inventiveness and build upon them. It is expected that the support to new technology, mainly in the sectors of engineering, electro-technical, rubber, plastics, and chemical production, could lead to a reduction in the size of the workforce. On the other hand, in the manufacturing industry sectors based on the use of domestic raw materials and manual labour (e.g., textiles, clothing, footwear, wood), new

employment opportunities may be created. Similarly, an increase in employment is expected through sole trader businesses.

The integration of the Slovak Republic into the EU, the globalization of the world economy and the ongoing restructuring of the Slovak economy represent critical economic processes creating pressures on the development of a competitive and dynamic economy: an economy based on the responsibilities, initiatives and creativity of the citizens which would guarantee better living standards and environmental quality for future generations. The vision of the Slovak economic development predicts to be comparable with the most developed EU countries. Slovakia will become an attractive country for its inhabitants and visitors and for future generations (NSRR, 2006).

Tourism Trends

Currently, tourism has become one of the most important economic activities for the EU as well as for other countries in the world. In socialist countries, tourism was shaped by the ideological legacy, rooted in the Marxist theory of production. According to this, only the production of material goods could be considered a real and efficient form of production. As an “unproductive and inefficient” activity, tourism had a low priority in the central planning (Williams and Baláž, 2001). The volume and structure of tourist flows to and from Slovakia before 1989 were mostly determined by political consideration (Johnson, 1995). In the socialist period, the CEE countries were heavily dependent on tourist demand from neighbouring countries. In Czechoslovakia in 1989, for example, 82% of inbound and 59% of outbound tourism was centred on just three countries: the German Democratic Republic, Poland and Hungary (Baláž and Williams, 2005). After 1989, international tourism has been seen as an important source of international currency in the transition economies (Baláž, 1996), an attraction for foreign investment and as having considerable potential for income and employment generation (SNAFID, 1993). Paradoxically, the state did little to foster tourism in most of these countries, and there was an assumption that the private sector would be able to utilize the natural and cultural heritage to attract foreign tourists (Williams and Baláž, 2000).

The CEE countries have experienced similar trends in inbound tourism, with a period of rapid expansion after 1989 being followed by a decline or static numbers. The Slovak Republic experienced a trajectory similar to that of its neighbours with a peak (33.1 million) in 1996 (Baláž and Williams, 2005). Some negative trends emerged in Slovak tourism in 1997. The numbers of international tourist arrivals and revenues decreased for the first time after 1989. After the first wave of Western interest in the former Eastern block has passed, Slovakia is no longer a prestigious or unique destination for European travellers. This decline arguably reflects the lower levels of 'curiosity tourism' initially. Moreover, this decrease in the numbers of tourists was partly due to external factors (notably the devastating floods in Central Europe just before the summer season), but tourist surveys also reported the dissatisfaction of foreign and domestic tourists with the low quality of the tourist services. It seems that the initial development potential stemming from the removal of the Iron Curtain and the introduction of a market economy, had been exhausted. Cheap but poor-quality services seemed unable to attract a new customer base. Instead, there was the need for a more sophisticated tourism system, better able to compete with tourist industries in other transition countries and in the EU (Williams and Baláž, 2000). To attract foreign as well as domestic tourists, the tourist industry needs to focus on the quality of its products and the professionalism of their services with which they are delivered.

The trend of improving the quality of tourist services is very slow and moreover, unbalanced. A fundamental turn in the quality and complexity of tourism products has not been reached yet. In this area, there is a significant lag behind international standards. However, the number of changes indicates improving quality standards (SOP, 2003).

Slovakia's biggest advantage compared to the neighbouring countries is its manifold tourist possibilities to offer in combination with cultural and natural attractions. Slovakia as a holiday resort needs to be presented on the international tourism market with services and new tourism facilities attractive for the potential visitors. The results of long-term surveys of visitors' motivation suggest that it is necessary to adapt Slovakia's 'supply' to the interest of foreign visitors, to develop and promote mountain and spa holiday resorts in the marketing strategy.

With its mountainous character, the Slovak Republic has very good conditions for developing winter sports facilities. However, the future snow predictions are not very optimistic. The gradual global warming and climate change in Central Europe will render the conditions for winter sports more difficult. According to the 2005 Slovak Republic Tourism Development Strategy, artificial snowmaking facilities will gain importance. The limiting factors of artificial snowmaking might be its financial cost and the environmental impacts.

The perspective clients for Slovakia are not the demanding skiers who prefer Alpine resorts with its varied landscape and better and more complex services. It is necessary to focus on visitors from the countries with no great skiing possibilities, such as Hungary, Poland, Czech Republic, Russia, Ukraine, Croatia, Latvia, Lithuania, Estonia, Bulgaria and Romania. For these target groups, it is necessary to prepare a complex offer of services in order to increase their satisfaction and motivate them to visit Slovak winter resorts (SRCR, 2005).

The economic gains from winter tourism are bigger than from summer tourism, because tourists have higher expenditures, do not stay in cheaper campsites but in hotels, spend more money on sports activities (ski-passes etc.) and do not cook their own food but eat in restaurants (SRCR, 2005). Winter activities linked to mountain areas (all snow activities, i.e., skiing, ice-skating, snowboarding) have a tendency for growth for both foreign and domestic visitors (SOP, 2003). However, compared to Alpine resorts, the winter tourist season in Slovakia is short (100-120 days, while in France 120-150 days). Therefore, it is necessary to diversify additional activities in tourist resorts. It is required to create multipurpose skiing resorts.

Summer mountain tourism has had a long tradition in Slovakia. In addition to the traditional hiking, mountain biking and mountain climbing are very popular. There are more than 12,000 kilometres of marked hiking paths in the Slovak mountains with good conditions for the development of Alpine tourism and mountaineering. It will be necessary to mark new mountains and areas and build artificial rocks. The demand for better services for cyclists is increasing. New trends such as active relaxation are appearing, especially water sports such as windsurfing, kayaking and yachting. Tourist resorts should be focused

on multifunctional and extraordinary activities to attract more visitors (KRCR, 2005).

Taking into account the increasing demand for thermal spas and the new boreholes with high-quality thermal water, the number of thermal spas will increase. Summer holidays close to the water have become a mass form of recreation and sports. Aqua-parks will be attractive for visitors throughout the year, because they offer good leisure entertainment also in bad weather.

The prepared refurbishment of a network of manors, palaces and chateaux to four or five - star hotels, initiated by foreign investors, may be another way to make Slovakia a more attractive destination for tourists. Concerning the gradual development of golf in Slovakia, it would be ideal to connect those sports activities with the prepared refurbishment of various historic buildings.

By building additional tourist leisure resorts, seasonality can be reduced and the possibility for holidays can be expanded with additional sports and entertainment activities. It is therefore a strategic goal of tourism to prepare an attractive supply ensuring increased numbers of overnight stays and revenues from international tourism corresponding to the tourism boom in Europe. However, it is necessary to improve the advertising of Slovakia abroad, develop high-quality products, and increase the volume of tourism services in order to extend the stays of foreign visitors in Slovakia (SRCR, 2005).

According to the SOP (2003), the recent years have seen unfavourable trends in the pattern of international visitors. The share of Western European tourists has stagnated and even gone down; on the other hand, the share of tourists from post-socialistic countries with lower expenditures has been increasing. Visitors from the Czech Republic, Hungary, Poland, Ukraine and former Eastern Germany make up 91% of all international tourists. The changing composition of clients means gaining more solvent visitors willing to spend more money during their stays. Higher spending means a higher economic effect with the same or lower numbers of visitors with a higher financial status. It is necessary to offer tourism services in 'compact packages' to suit tourists' requirements. The work of the Slovak Tourism Agency has to focus on specific target groups, as visitors will require a wider spectrum of high-quality tourism services (SRCR, 2005).

The only way for Slovakia to succeed in the international competition for tourists is to maintain fair quality and prices. In the future, long-term tourism development cannot be built on the principle of low prices, although it is still beneficial in the present. The cost of tourist services can rise, but on the other hand the quality has to grow even faster. Only this can guarantee the reproduction of tourism entrepreneurs (SRCR, 2005).

In the coming years, it will be necessary to conduct more detailed and specific analyses and focus on projects offering yearlong tourist activities. It will be necessary to build a range of additional resorts. Those will create conditions for the development of new activities and products in their close proximity (KRCR, 2005).

According to SRCR (2005), the vision is to make tourism an attractive sector for entrepreneurs and their employees with a subsistence guarantee and profitability. The revenues from tourism should grow faster than the numbers of visitors as a result of the focus on better quality and efficiency, meaning new lucrative markets with more solvent clients. To ensure this, it is necessary to stimulate tourism entrepreneurs to create new products and attractions, develop complementary services and increase the quality of tourism services offered. Since the events of the last 15 years have triggered a rapid rise in rural unemployment, tourism industry has now been identified as a catalyst to stimulate economic development, increase the viability of lagging regions and improve the standards of living in local communities in the former CAC countries of Central and Eastern Europe (Briedenhann and Wickens, 2002).

Rural Development Trends

In many countries, especially in areas with declining economic activity, the restructuring agricultural sector and emigration of higher educated youth have led to the emergence of new alternative development strategies for the economic and social regeneration of rural areas.

Until the late 1980s, scale enlargement, intensification, specialization and, in some sectors, a strong trend towards industrialization were the parameters that circumscribed the developments in the agricultural sector. In addition, regional disparities increased and tensions grew between the landscape, nature, the

environment and product quality (van der Ploeg et al., 2000). This was the starting point for the slow introduction of the structural policy in the European Union, trying to integrate different types of interventions with the aim to get a more balanced development in all areas. The importance of integrated rural development as a policy concept within the EU was adapted and promoted by European rural policy circles to widen the policy frame from a single-sector approach and to diversify beyond the agricultural sector. It was finally highlighted in the European Commission's Green Paper on the Future of Rural Society (CEC, 1988). The 1991-1993, 1994-1999, and 2000-2006 Liaison Entre Actions de Development de Economie Rurale (LEADER I, II and +) programmes of the EU provide a good example of integrated development initiatives.

The European Union policies and programmes, such as LEADER and many different national and regional programmes, support integration between sectors and agencies, participation through consultation with local communities, and empowerment of local communities to influence the trajectory of local development and are all enhanced by bottom-up programmes (Bowler, 2003). However, the notion of territorial, multi-sectoral, decentralized and sustainable rural development has appeared in the EU rural development legislation recently (2003) as part of the new reform of the Common Agricultural Policy (CAP) through its second pillar – the Rural Development Regulation.

Although the integration of sectoral policies with the aim to balance development in all areas appeared already in the early 1980s due to rising employment in rural industry, increasing migration out of economically unsuccessful areas, and apparent environmental problems, in CAC countries agriculture was still the main target for rural areas and heavily subsidised by the former governments in order to demonstrate the self-sufficiency of the socialist regimes.

The transition process of the Slovak Republic from a command-and-control economy to a market economy has revealed stark regional disparities. There are significant disparities between rural and urban areas too⁹, especially in

⁹ According to uniform procedures of OECD and EU (EUROSTAT) the rural area on the local level NUTS-V includes communities with density under 100 residents per square km. As per 31.12.1999 rural areas consisted of 2 241 of such communities, i.e. 78 % of the total amount of 2 878 municipalities of Slovakia.

terms of income, age, unemployment and population. Slovakia's mountainous character, its underdeveloped infrastructures and traditionally low population migration has resulted in an asymmetric population distribution in the Slovak Republic, where most of the population is concentrated in the main regional centres. In order to solve this disparity, governments in the previous political regime were allocating large industrial facilities to each region. Thus, after the failure of the common market of the CAC countries, this strategy, based on strict branch specialization, energy-demanding technologies and little concern for the accessibility of resources and labour mobility, resulted in an economic collapse (Klúvanková-Oravská, 2003) and social problems, which some of the areas have not been able to overcome to this day.

The regional disparities and the differences between the rural and urban areas were increasing in the 1990s. Most of the investments were allocated to the urban areas, and the rural areas suffered all the more. The absence of interest/investment in the rural development, undeveloped specialist and professional knowledge among the rural population in general as well as the weakly developed infrastructures of the rural areas have influenced negatively the rural development. Moreover, the employment opportunities are still poorer in all rural areas and as a consequence the rural population – particularly the young – have begun to move to the larger urban centres.

There is a real danger that a rapid rural depopulation could occur in all rural areas if this situation is not addressed. Diversification of the rural economy is therefore a key objective in order to preserve and improve the balance of economic opportunities and social conditions for the rural population. In the interest of removing the sectoral approach to the development of the Slovak countryside, the Slovak Ministry of Agriculture prepared the Conceptual Policy of Rural Development in the Slovak Republic (SR) in 1998, approved by the Slovak Government as Resolution no. 592/1998. The Conceptual Policy defined rural regions based on a political-economic and demographic analysis, and set out principles, objectives and priorities of rural development. These were transferred into the Agricultural and Rural Development Plan of the SR, which was approved by the Slovak Government as Resolution no. 1007/1999 (SOP, 2004; NDP, 2003).

The basic objective of Slovakia's rural development concept is to ensure an adequate living standard and to improve the quality of life of the rural population, ensure employment and adequate income through development of economic activities in agriculture, forestry, water management, processing industries, traditional arts and crafts, services and tourism, the establishment of a suitable social climate, protection and creation of a healthy environment (RDP, 2004; SOP, 2004). The global objective is to ensure sustainable development of rural areas with specific objectives such as maintaining rural population and improving demographic development in particular marginal areas, improving levels of economic and social income of the rural population, creation of new job opportunities and generation of a rural culture and aesthetics, utilization of the cultural, ethnographic and historical tradition. Moreover, by supporting the participation of local communities in rural development activities and raising the participation of rural populations in decision-making, the objective is to establish conditions for the socio-demographic stability of the rural country. The strategy of the Rural Development Plan SR 2004-2006 was elaborated in compliance with basic frameworks such as the implementation of sustainable rural development in the EU (Council Regulation EC 1257/1999), the national priorities for sustainable rural development (SOP, 2005) and the definition of the rural development needs.

Several activities have been suggested to improve the economic opportunities and social conditions of the rural population and thus ensure their stabilization in the rural areas. Those activities include the reconstruction of existing farming and forestry facilities to agro-tourism facilities; the construction, reconstruction and modernization of agro-tourism facilities, and reconstruction and modernization of properties suitable for development of recreational and relaxation activities (hiking paths, horse riding, fishing, hunting, traditional rafting, cyclo-tourism, water sports, winter sports etc.) (RDP, 2004). Their regeneration, renewal and revived use can therefore lead to the creation of new jobs based on the use of the local development potential (NDP, 2003).

The development of rural tourism activities is very important for the economic stabilization of the rural community, as more than 2,500 municipalities are situated in attractive natural areas (NSPRV, 2006). The great potential of the

Slovak countryside can contribute to the development of agro-tourism or rural tourism as an alternative development strategy for the economic and social regeneration of the rural areas. The considerable importance of rural tourism can stabilize and economically supply the rural population and thus decrease the high unemployment rates in some regions of the Slovak Republic.

The generation of tourism products has to be supported by local and regional associations and entrepreneurs. Multiple municipalities also need to join their activities. A mutual process and marketing planning can help achieve better efficiency than in isolated steps taken by each municipality. The regional organizational structure has to be built up by a bottom-up process, with decision-making competencies and own financial resources. The actors have to recognize that the aim of their co-operation is not create obstacles for the others or discover trade secrets but the common performance and presentation on the market and the common creation and distribution of the final product (SRCR 2005). Those approaches (LEADER) have not been implemented in Slovakia during the programming period 2004-2006 within the Sectoral Operational Programme for Agriculture and Rural Development (SOP, 2004). However, during the period 2007-2013 the LEADER approach is implemented in the National Strategy of Rural Development 2006-2013 with the aim to establish and develop local partnerships and involve local populations in decision-making processes, which can lead to the integrated development of rural areas.

In the framework of the regional economy, the diversification of agricultural and related activities represents an important source of new job opportunities based on local natural, material and human resources and creation of additional incomes for both the rural population and agricultural business entities. The development and conservation of the employment rate is one of the conditions for sustaining the rate of settlement in the countryside. By means of the creation of new job opportunities, space will be created as well for the solution of the long-term unemployment among the Romany population. Diversification forms an important component of the sustainable rural development policy. Diversification of agricultural and related activities as a component of diversification of the entire rural economy is therefore a crucial point for improving the social conditions of the population, their stabilization in the rural

areas and – through increasing numbers of visitors to rural areas – also for the development of other sectors of the rural economy (SOP, 2004).

An analysis of the National Strategic Plan of Rural Development for 2007-2013 shows that in order to improve the quality of life in the rural areas, it is necessary to support activities that will lead to decreasing unemployment, development of municipal infrastructures and mobilization of local action groups. Therefore, it is necessary to direct the support of the National Strategic Development Plan towards diversified agricultural and non-agricultural activities. This investment should create sustainable and competitive jobs and also improve the environmental quality.

According to the Regional development plan, desired development of the rural areas is to make them more attractive for the residency and economic fulfilment of young people. The disparities between the rural and urban areas will decrease, mostly as the quality of communications and transport networks improve, improving in turn people's mobility. Thanks to the EU assistance, more people will join community activities and thus contribute to the regional development.

Nature Protection Trends

In order to grant special protection to areas of high ecological value, almost all European countries have granted specific areas legal protection from various type of economic use. The status of protected areas recognises the different degrees of importance of the area concerned in terms of landscape, biodiversity and as a recreational resource. They are managed by national and local agencies or voluntary conservation organizations as national parks, nature reserves or other types of protected areas. The establishing of protected areas (PA) and care of them is an instrument of implementing territorial protection, that aims to contribute to the diversity, preservation of the conditions and forms of life on Earth, the protection and sustainable preservation of natural resources, conservation of the natural heritage and characteristic scenery, and achieving ecological stability (RDP, 2004).

However, the increasing pressure on economic utilization of the natural environment and the massive enforcement of the market mechanism has resulted in the need for changing the nature protection approach all over the world. It is a transition from a passive approach based on the paradigm of a static understanding of the succession and climax stages, which lead to nature protection restrictions, to an active approach based on the protection of biodiversity. That means understanding the role of humans as an active part of the ecosystems which has been in balance with the nature for centuries. The main aim of nature protection should be to recover that balance, which has been disturbed in the last decades (Šeffer, 2001).

Under the command-and-control communist regime (1948-1989), direct democracy was completely absent and environmental protection was not a major interest of the society. Moreover, unsystematic development resulted in biodiversity loss. The failure of the State to manage its natural resources in an effective manner resulted in a de facto open-access resource regime. The political changes in the late 1980s and early 1990s, along with the collapse of economies, reduced the pressure on the environment. However, the decline in the environmental degradation at the beginning of the 1990s is not attributed so much to a sharp improvement in environmental care, as rather to a decline in industrial production. Since environmental protection was not given a high priority in socialistic societies, the prevalent values and attitudes are not primary oriented towards sustainability (Gatzweiler and Hagedorn, 2002).

Moreover, the present economic development is still focused on material values, and consumption hinders the public from recognising environmental protection as an important element of society. Since the mid 1990s with the impacts of the renewed economic growth, the improving trend of the environmental indicators has begun to slow, resulting in a stagnation, with the occasional occurrence of a year-on-year worsening of some of the indicators. Moreover, with the development of new economic activities, new sources of environmental risks arise. As a result of this, the devastation of numerous natural areas and the natural resource exploitation have dramatically accelerated in the recent years. The environment is threatened by the delay in building environmental infrastructures on the one hand and by the spreading of adverse models of consumer behaviour – in particular on the consumption side

– on the other hand. Environmental problems occupy an inappropriately low position in the hierarchy of social problems perceived by the public (NDP, 2003).

The impact of the transition changes on the society can be seen not only in the inadequate funding for nature protection but also in the inflexible legislative and institutional framework. First of all, the nature protection approach in a democratic society needs amending, while respecting the rights of landowners on the one hand and nature protection legislation and its control by the state have to be respected on the other hand. Only recently has there been a more noticeable improvement in the environmental legislation and establishment of new institutions. The pressure of the EU, environmental non-governmental organisations and civil initiatives have also played a positive role.

From the environmental point of view, Slovakia belongs among countries with a high natural potential. Its rich and diversified fauna and flora are the result of the varied natural conditions. One of the priorities in nature and landscape protection is care for protected territories and important biotopes alongside care for protected species and specimens. These priorities ensue from National Council of the Slovak Republic (NC SR) Act no. 543/2002: the Digest of Laws on Nature and Landscape Protection as amended, in force since 1 January 2003¹⁰. The aim of the act is to contribute to the conservation of the variety of conditions and forms of life on Earth, creation of conditions for permanent sustaining, renovation and rational use of natural resources, conserving natural heritage, the characteristic aspect of the country and for achieving and sustaining ecological stability (NDP, 2003).

The Slovak Republic had the obligation of legislative harmonization with the EU environmental *acquis* and of establishing an environmental legal system. The harmonisation of the national legislation with the legislation of the EU in the field of nature protection means especially the transposition and implementation of the two Directives which form the basic legal tool of nature protection in the EU,

¹⁰ The territory of the Slovak Republic comprises 9 National Parks, 14 Protected Landscape Areas, 189 Protected Sides, 376 Nature Reserves, 231 National Nature Reserves, 230 Nature monuments and 60 National Nature Monuments (as of 1 April 2002, data by the Slovak Ministry of Environment). The total area of specially protected areas (National Parks, Protected Landscape Areas, Nature Reserves, National Nature Reserves, Nature Monuments, National Nature Monuments and Protected Sides – protection levels 2 – 5) in Slovakia is 1,144,622.663 ha, which represents 23,3% of the country's surface. Two National Parks and two Protected Landscape Areas are part of the UNESCO World Biosphere Reserves programme Man and Biosphere. Twelve sites are on the list of wetlands of international importance under the Ramsar Convention, while 4 areas are on the World's natural and cultural heritage list (SOP 2004).

i.e. Council Directive 79/409/EEC on the conservation of wild birds (Birds Directive) and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). The transposition of both the Directives and of Commission Decision 97/266/EC concerning a site information format for proposed NATURA 2000 sites was performed by NC SR Act No. 543/2002 Coll. on Nature and Landscape Protection approved on 25 June 2002. The approval created a legal framework for the elaboration of NATURA 2000 site proposals and their protection.

The implementation strategy sets out the basic instruments for the implementation of the EU requirements; its focus is the implementation plan for the key directives of the EU legislation (the Habitat and Birds Directives) and establishment of the NATURA 2000 system on the one hand and institutional strengthening of the state administration in the implementation of other directives and regulations on the other hand. The crucial points are therefore targeted at the collection, evaluation and presentation of information to the European Commission and the training/information activities. The key problem is the preparation, declaration and ensuring of the system of NATURA 2000 protected territories. It is necessary to collect information on biotopes as well as on species research, do supplementary mapping and evaluate the biotopes. Management plans have to be prepared and projects of territorial systems of ecological stability implemented. These key points results in the need for institutional provisions aimed in particular at increasing personnel capacities and improving administrative and expert work. Instruments necessary for the conservation or improvement of the territorial protection status under the NATURA 2000 system include e.g. also the creation of a monitoring system, nature protection schemes, and systems of management plans, legal and financial mechanisms.

It is therefore necessary to elaborate new management plans and care programs¹¹ for the protected areas with clearly stated nature protection priorities and an enforcement system, including human and financial resources, which

¹¹ However the care programmes are prepared and approved by the government for 5 national parks (NP): NP Slovenský Raj, NP Malá Fatra, NAPANT, TANAP and PIENAP. The others (NP Muránska planina, NP Poloniny, NP Veľká Fatra and NP Slovenský kras) have no care programmes prepared yet. Pursuant to tasks stipulated by the Government Resolution approving care programme for NP the fulfilment of tasks ensuring from care programme are gradually evaluated.

are still missing especially in NATURA 2000 (NSRR, 2006). To ensure the legitimacy of those documents, the active participation of all affected stakeholders and their implementation in collective decision-making are required.

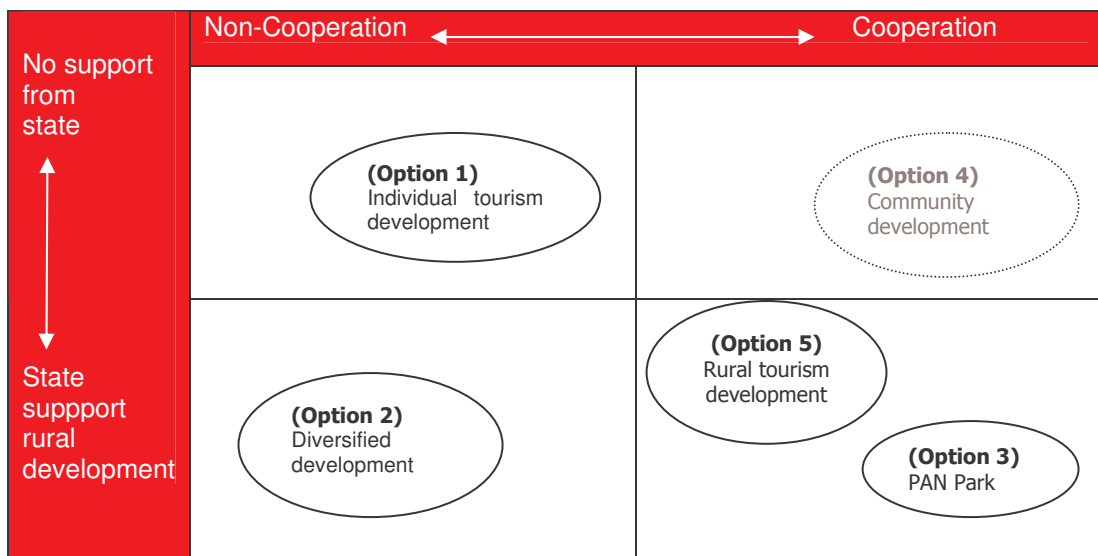
The presented trends represent the possible development paths for national policies of the Slovak Republic. Each of them embodies a different issue. The solution to each issue is presented separately without taking into account the possible linkages between them. However, the persistent high unemployment – one of the main economic and social problems of the Slovak Republic – and the existing differences in the economic and social development of the regions of the Slovak Republic (which originated in past and have been strengthened by the structural changes in key economic sectors) need to be resolved systematically in order to reduce the regional disparities and thus contribute to the integrated development of the country. Support and strengthening of the development of less developed regions or those most affected by the structural changes is among the priorities of the EU and Slovak regional policies. The basic objective of such a concept is to ensure an adequate living standard and to improve the quality of life of the rural population, ensure employment and adequate income through the development of diversified economic activities, establishment of a suitable social climate, and the protection and creation of a healthy environment. In the framework of the regional economy, the diversification of agricultural and related activities represents an important source of new job opportunities and can facilitate a decrease in the regional disparities. The great potential of the Slovak countryside may contribute to the development of tourism as an alternative development strategy for the economic and social regeneration of rural areas. However, the development of new economic activities should not increase environmental risks, but has to focus on the protection and sustainable preservation of natural resources, conservation of natural heritage and the characteristic scenery and the attainment of ecological stability. However, the old model of protecting the environment, based on a system of bans, can be replaced by promoting synergies between nature protection and rural development. The new tourism trends (which in the last decade have led to a shift from a threat into an opportunity for protected areas (Kurczewsky, 2001), may help support rural

development as well as protect the environment, or as Huybers and Benett (2002) pointed out, rural tourism and protected areas can be mutually beneficial. As the natural environment is an important attraction for tourists, and at the same time tourism has the potential to damage the environmental quality, protected areas play an important role in environmental protection and are thus a major attraction for tourists. On the other hand, tourism is seen to enhance environmental awareness and appreciation and to provide funds for protection. Mathieson and Wall (1982) identify protection of natural areas as direct spillover effects of tourism. Thus, the existence of protected areas in the region may enhance rural tourism, and rural tourism may, in turn, produce positive economic, social and environmental benefits within the protected area and the region.

4.4.2 Scenario Development

The outputs of the in-depth interviews (local forces - peoples' perceptions and priorities regarding the nature of governance, co-operation and decision-making in the park area) along with the insights from literature (external factors - national and European level development trends), and their combinations led to five broad sketches for the basic options for sustainable development in the study area (Figure 4-3).

Figure 4-3: Five basic options for sustainable development in the study area (option 4 represented in grey was developed with the help of actors during the first workshop)



The 'rural tourism development' option was included as an alternative option exploring the possibility of extending the research area to the regional level.

Participatory Workshop I

The scenario development process was followed by a participatory workshop on 18 October 2005 involving 12 local actors to comment on and provide additional input for the scenario construction. All actors actively participated in the discussion about the first sketches of the scenarios. Their views of the key development issues of the area were incorporated in the scenarios.

Generation of the Options

On the basis of the deliberative process, participants compiled a list of variables by means of a brainstorming exercise, which were classified as 'actors' or 'factors'. Three factors/actors of particular importance to participants were selected for these basic options: the building blocks for the scenarios. The content of the scenarios was extended to cover the following additional topics: institutions and governance, role of other social actors, and state of the environment.

The basic options were then checked for inconsistencies, developed more fully and presented to the local stakeholders in the next stage of the process. We decided to identify key parameters and write the primary story line of one of the scenarios (Option 4) in a participatory manner during the first workshop. Three individual working groups, each made up of 3-4 stakeholders, then worked on each of these groups of building blocks and came up with sketches of the scenario. Then each group presented their ideas and all participants together combined those ideas and developed the story line for that option.

Participants focused on the 'community development' option also because this option proposes bottom-up co-operation of local stakeholders. This deliberative approach was chosen for two reasons: (1) ensuring that the scenarios addressed the key issues that the stakeholders were most concerned with; and (2) through interaction with others and workshop materials, raising the stakeholders' awareness about the issues and problems in the Slovenský Raj

National Park and engagement of all these participants to think about the future. The 'openness' of the process allowed all interested parties to comment on and to contribute to the development of the scenarios.

The next step was for the research team to construct the story lines for all the remaining options. The main challenge was to find the right combination of particular factors/actors and external and internal driving forces. Over the consequent period, the research team worked with the help of relevant experts to add some data to the scenario.

Robustness Framework

In order to ensure a greater degree of comparability between the scenarios, the story lines of each scenario were constructed and defined by the research team based on the robustness framework of the socio-ecological system (Table 4-1). This framework highlights the main components and linkages important to the characteristics of a SES and highlights and helps identify the potential vulnerabilities in each scenario. Another important aspect of using the framework was to show the complexity of the system, in which different dimensions are linked together. The framework consists of a list of elements that are of key importance to understanding the robustness of a socio-ecological system – a resource, the resource users, public infrastructure providers and public infrastructures (physical capital and institutional settings). By focusing on the same elements in each scenario, it helps identify the potential vulnerabilities in the future of the system in the face of slow enduring disturbances.

Table 4-1: Robustness framework for scenario development

Scenario development		
Entities of SES		Actors and Factors
		Link between entities of SES
		Major changes in policy, demand for tourist services
		External forces on social actors
		Type of development (construction of new roads, new infrastructures)
		External forces on resource and infrastructure
		Benefits, employment
		Link between resource users and public infrastructures (impact of rules (SC), type of development (PC) on users)
Public infrastructure providers	The state (its financial and legislative role)	
	Associations of municipalities (Type of organizations, informal/commercial)	
	Park Administration (involvement in associations, in education etc.)	
		Link between public infrastructure providers and public infrastructures
		Funding and its flow, capitalization
		Co-operation
		Link between users and public infrastructure providers
Resource users		Type of investors (big/small, foreign/local, specialization)
		Landowners (their willingness to exchange their land)
		Entrepreneurs (type of, what services they offer)
		Tourists using services and facilities (type of tourists, what activities they prefer, length of their stay...)
Public infrastructures	Social capital	New strategies & rules (compensations, zoning system, new law, acts)
	Physical capital	Tourist services and facilities (engineered works, paths, all access mechanisms: ladders, side-steps, chains, etc.)
Resources		Forest, National Park, and surrounding area (state of the environment)
		PC: Impact of development on the area (small distance, great distance) SC: close areas, reopen areas
		Link between public infrastructures and resources

According to the principle of *balance* (Berkhout et al., 2002), the scenarios were revised and their names were changed, whereby the story lines of each scenario (including the title) were developed as neutrally and dispassionately as possible – seeking to avoid bias in favour of or against any particular scenario. After some merging and combination of all factors/actors, components, secondary data and linkages between them, the five basic options were then reformulated in a more coherent way and presented to the local stakeholders as the final scenarios in next stage of the process.

In this context, the five alternative local-scale scenarios for the Slovenský Raj National Park area are conceived as a plausible and consistent combination of

the local driving forces and two key external driving forces: European rural development policy on the one hand and Slovak national development policy on the other hand. Following scenario typologies defined by van Notten et al. (2003), the five scenarios for SRNAP were constructed in a normative and anticipatory way: *Choice and quality*, *Celebration of diversity*, *Appreciation of nature*, *Responsibility for nature and community*, *Traditions and local culture*. In each scenario, a simplified general description of the scenario is made containing the dominant driving forces, followed by the scenario story line combining social actors, rules, and the resource and the links between them. Each scenario is summed up with a tabulated framework highlighting all the factors.

The whole process took about one year and involved the research team, experts and local actors and affected parties from the National Park area. The engagement of so many people was in itself an accomplishment since it engaged all the actors in thinking about a wide range of possible paths and exploring them in a rigorous, transparent and inclusive way.

The five alternative scenarios of the future development of the Slovenský Raj National Park, developed in a participatory way, are summarized below.

Scenarios

Scenario 1: “Choice and Quality”

In this scenario, there is an increased demand for quality and all-inclusive tourist services concentrated within short distances without the necessity to use any kind of transport after arrival in the park. To provide those comprehensive and high-standard services and thus to satisfy the tourists, the development is fully focused on the utilization of all the natural and landscape characteristics for the building and offering of new high-quality tourist services and facilities inside the Slovenský Raj National Park and a few surrounding municipalities. There is a rapid growth in the number of large tourism businesses and there is an increasing openness to international investment. This situation accentuates co-ordination of the tourist activities in the park area and at the same time enhances pressure on the surrounding wildlife.

Scenario 2: “Celebration of Diversity”

Employment is the driving force in this scenario. In order to improve the economic and social conditions and reduce the unemployment in the local communities, socio-economic development is a major concern. People value nature protection in this scenario but it is not the priority. Thus development of the Slovenský Raj National Park (NP) and the surrounding municipalities is focused on diversifying economic and social activities, which means different types of light industry and services (workshops on IT technologies, offices for architects, etc.), and different types of tourism (educational, sports activities, rural tourism, etc.). The growing demand for transport links leads to improvements in the infrastructures and the quality of the roads. This scenario targets a wider spectrum of players, because the increased jobs opportunities allow new actors to enter the economic scene. This situation leads to an improvement in the economic standard of the region but on the other hand increases the pressure on the surrounding wildlife.

Scenario 3: “Appreciation of Nature”

In this scenario, the Slovenský Raj National Park succeeds in joining the European Protected Area Network of Parks (PAN Parks). PAN aims to improve wilderness management and to balance tourism and conservation. According to the PAN Park principles, co-operation between local actors is crucial. Pressure from NGOs and the park administration mounts on the government to focus on nature protection issues. Inside the park area, nature protection is thus central and tourism based on sustainability principles is supported. However, there is a need for some restrictions in certain sensitive areas. In this scenario, the region targets mostly visitors who prefer nature-based tourism.

Scenario 4: “Responsibility for Nature and Community”

In this scenario, there is an increasing tendency among the local population and local associations to focus on the development of tourism. However, tourism is not treated purely as an economic activity but also

as a tool for solving social and environmental problems. Tourist activities are based on co-operation of local interest groups who control, organize and co-ordinate tourism in the region, but they do not restrict the number of tourists. This scenario emphasises the development of tourism within the park area and in a wider range of surrounding municipalities. It targets a wider spectrum of visitors, who prefer quality but not necessarily luxury services.

Scenario 5: “Traditions and Local Culture”

In this scenario, there is an increased pressure from the EC to focus on integrated rural development and multifunctional agriculture. Thus, the economic development of the Slovenský Raj National Park area is such that tourism in the park does not play the most important role in the economy of the region. Tourist activities are concentrated mostly outside the park area, in the surrounding region of Middle Spis (Stredný Spiš) and are characterized as rural. They are based on traditional activities and modes of production and utilization of cultural resources such as cultural heritage, local architecture, customs and traditions. Several actors are involved in the tourism development such as tourism associations and individual entrepreneurs in the whole Middle Spis region. Increased demand for transport connections in the region leads to improved road quality. The development of rural activities in the surrounding region contributes to the revitalization of abandoned agricultural land.

A full description of all the scenarios can be found in the Annex.

In terms of the time scale, our intention was to locate the scenarios into a future where some policy and institutional changes are possible and the people's preferences, attitudes and values may be more oriented towards sustainability. However, we did not want to place them too far into the future for the stakeholder to find it difficult to appraise them. Therefore, the scenarios were placed somewhere around the year 2015.

It is important to note that – like in other scenario-building approaches – the development of the five scenarios is not intended as a prediction of the future, neither as identifying the best path to reach a desirable future. The aim is not to promote or refuse one scenario or another, but rather use them for highlighting and exploring issues and uncertainties that any of the paths may lead to and allow actors to discuss and challenge these judgements (Berkhout et al., 2002).

4.4.3 Multi-criteria Appraisal

Multi-criteria Mapping

The method used in this study is an adapted version of the Multi Criteria Mapping methodology developed by Stirling (Stirling and Mayer, 1999) and the Deliberative Mapping (DM) methodology developed by the multi-disciplinary research team based at SPRU (University of Sussex), ESRU (University College London) and the Policy Studies Institute (PSI) (Davies et al., 2003).

The MCM approach was previously used mostly for appraising nearer-term technological and policy ‘options’, in the fields of agricultural biotechnology, biomedicine, nuclear waste, etc. (Stirling and Mayer, 1999; Davies et al., 2003; Burgess et al., 2004). Only recent studies have applied this methodology in combination with the scenario-building approach (McDowall and Eames, 2004; Stagl and Stirling, 2006).

Multi Criteria Mapping is usually based on a long interview with each individual participant, where the interviewer works interactively with the participant and displays graphically on a laptop computer with customised MCM software the emerging outcomes of the appraisal as they arise in the discussion (Burgess and Clark, 2006). However, it is also possible to use an adapted MCM procedure in a small group. Interviews record both the subjective numeric scores and weights attributed by the participants to the particular options and criteria and the narrative reasoning associated with those judgements; thus providing a quantitative ‘map’ of the participants’ appraisal as well as detailed qualitative data (suitable for discourse analysis) on their underlying rationale (Eames and McDowall 2005).

On the other hand, Deliberative Mapping emphasizes the value of involving a wide range of participants recruited from a diversity of socio-economic and demographic backgrounds to include a wide range of perspectives and values

(Davies et al., 2003). It combines assessment by individual specialists and members of the public (citizens). The citizens and the specialists participate in a variety of processes, separately and together, in a mix of individual interviews and group discussions. The citizens have access to a wide variety of information from the specialists, ranging from high-quality written materials through to joint workshop discussions. The specialists have the opportunity to discover different views through face-to-face contact with the citizens. Such a debate can lead to revealing the reasons for the different points of view and their implications and the mutual learning can help foster better understanding. However, such an approach is very complex, time consuming and expensive.

We chose to adopt a different form of approach: one that would allow for including features of both classical MCM (one-to-one interviews) and deliberative MCM (specialists' advice and group workshops). Since we worked with actors who are practitioners, individuals with practical experience in various evaluations of strategies and policies (e.g., mayors, government advisors, foresters, and tourism entrepreneurs), we decided to not carry out joint workshops. We believed that the participants would be able to justify their appraisals, drawing on their own knowledge and expertise as established professionals in the broad field of nature protection, tourism industry or as representatives of institutional actors in the broader field of rural development. On the other hand, it is not possible for all participants to have all relevant information about the complex and an uncertain issue of rural development.

One way to overcome the possible lack of information is to provide the physical data gathered by the researchers from various existing documents and literature to the participants or to allow the specialists to provide this information to the participants. We chose to adopt the latter approach, however not in the form of joint workshops for local stakeholders and experts. We decided to first conduct one-to-one interviews with experts and then offer this data and findings in the interviews with local stakeholders. However, the local stakeholders should feel free to take into consideration this information and data provided or rely solely on their own judgement.

Moreover, in our approach we tried to combine the individual basis of the classical MCM with the group basis of the deliberative MCM, where stakeholders work together during the workshop to develop the scenarios and

criteria and conduct the initial weighting, however the final MCM interviews are conducted on an individual basis. The reason for not performing also the final MCM interviews in a small-group workshop was that we found it difficult to manage and facilitate a group of stakeholders who would all work with computers and moreover, it was difficult to supply more than 10 laptops.

After the interviews were analyzed, the stakeholders met again at the final workshop to discuss the findings and their possible implications and the next steps. Within such workshops where there is a diverse mix of participants, they all have the opportunity to engage with each other, ask questions, ask their views, learn from each other's discussions and decisions, and discover the other participants' different views.

Identification of Evaluation Criteria

During the participatory workshop for developing the scenarios, the participants also focused on developing and identifying a number of criteria that were important for them with regard to the robustness of the area. These criteria are types of issues which we want to take into account when assessing scenarios. They represent the universe of considerations against which the performance of an option needs to be judged (Davies et al., 2003).

Prior to the participatory workshop, the first identification of the criteria was made by means of in-depth interviews. Those interviews served as the initial motive for choosing the criteria. We focused especially on the actors' main problems, concerns, and priorities concerning the development of the study area.

Based on the above, the workshop participants were offered six initial criteria: biodiversity, the size of undisturbed ecosystem, litter, return on investment in the tourism sector, access to information/availability of information, and collective decision-making.

To focus the scenarios in terms of robustness, three categories of criteria were suggested initially: accountability, economic effectiveness, and equity. All these aspects (accountable processes, equitable decisions, and effective organizations) can together boost the robustness of SES (see Chapter 3).

However, while interviewing the local actors and during the participatory workshop discussion, another important aspect – environmental quality - was stressed as important to the actors, although within the robustness framework it can be characterised as a structure rather than a function.

The process of producing the set of criteria was not merely to list some criteria but to ‘think aloud’ about them. In this intensive deliberative process, the participants were first asked to reflect silently on what their personal criteria would be and also to think about the offered criteria. Then the participants were divided into three groups to share their suggestions and discuss them with the other members of their group. In the next stage, the groups came together to demonstrate their criteria to the other participants of the workshop. After the common discussion, the participants proposed 35 preliminary criteria. The complete set of criteria from the workshop is shown in Table 4-2.

Table 4-2: The complete set of criteria from the workshop

Environmental quality	Long-term economic effectiveness	Equity	Accountability
Natural scenery	Economic return on investment in tourism	Collective decision-making	Access to information/Availability of information
Air, water and soil quality	Proportionality of tourist services	Clearly defined rules	Consider scientific research
Traffic volumes	Balanced visitor rates	Equality of the environmental protection in the park and the municipalities	Public deliberation/participation
Sustainable forestry and agriculture	Employment in related sectors	Access to the market for all ethnic groups	Public statement/specification of fulfilment of tasks
Non-native species	Productive sectors	Social inclusion	Monitoring
Revitalization of disturbed ecosystems	Non-productive sectors	Equality of fees in partnership associations	Rule enforcement
Size of undisturbed ecosystems	Subsidiarity of funding	Equal/fair voting in partnership associations	Tourist satisfaction feedback
Flood protection	Quality of technical equipment		Non-contradicting rules
Fire protection	Quality of tourist services		
Elimination of litter			
Elimination of poaching			
Efficient use of natural resources			

Participants then tried to jointly identify the meaning/make a definition of each criterion. Where the definitions differed, the meanings were explored to see if there was any underlying agreement. The critical point to emphasize here is that even where meanings may be essentially shared between some participants, individual nuances may remain. Even though the same word or phrase can be used, the participants’ criteria do not always map onto one

another, such that apparently similar criteria can be amalgamated to form an overall set common to the whole group. Attempting such a mapping would result in a loss of meaning and discriminations that would not do justice to the critical reflection that individuals brought to their task. Just as importantly, amalgamating the criteria in this way would fail to take advantage of one of the strengths of the methodology; that is to allow for disparate views to be expressed, and enable the analyst to map the parameters of difficult issues (Burgess and Clark, 2006).

Criteria Weighting

In the last part of the workshop, the participants were asked to name those criteria that were important to them and to roughly weight those criteria according to their preferences. Each group of participants had to distribute 100 units among all the criteria according to their priorities based on common agreement by each group. This step was done in a playful manner by asking the participants within each group to negotiate and to distribute 100 round stickers by sticking them next to their preferred criteria written on big posters (Picture 4-1).

Picture 4-1: Participatory workshop, criteria weighting process



Such a participatory approach to criteria weighting allows each participant to express their own preferences on certain criteria and moreover, the group agreement helps them understand the necessity of collaborative actions; as one participant expressed:

"If we are able to reach a compromise now, I hope we will be able to reach it in the real-word situation of decision-making"

By discussing the importance of the criteria for sustainable development of the study area, the workshop participants were motivated to think about their opinions and received more information about the preferences of the others.

In the next stage of the workshop, the points were calculated and the overall ranking was presented to the participants, followed by a short discussion of the results.

After the workshop, the research team selected 12 out of the total 35 weighted criteria that had scored at least 10 points each. The advisable number of criteria varies but most commonly it amounts to 7-12 at most (Proctor, 2001; Stirling and Mayer, 1999). The research team drafted a concise definition, which was returned to the participants in the next step for approval.

Comparison of Scenarios

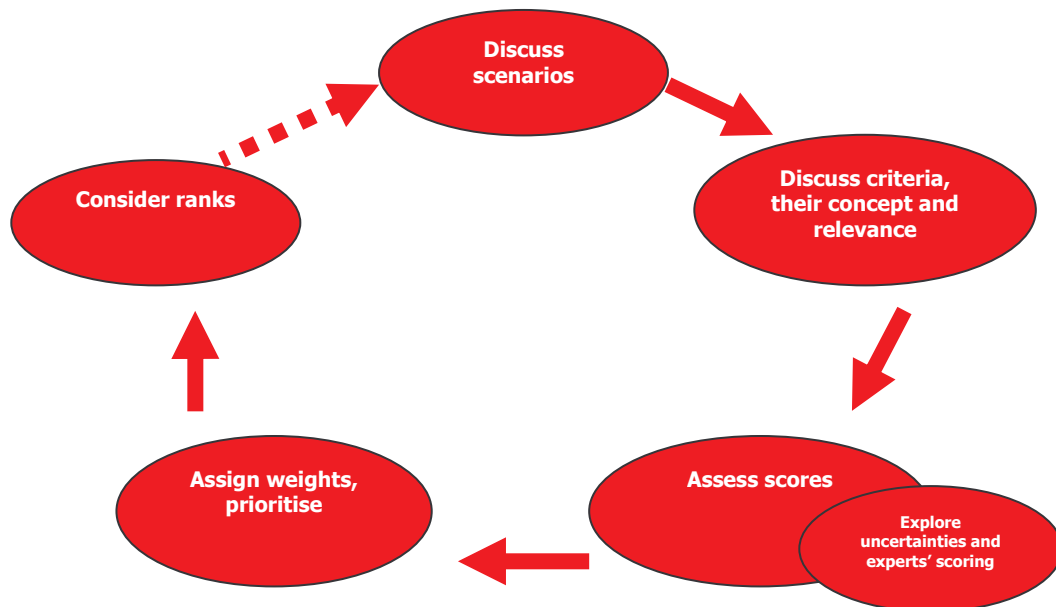
Multi Criteria Mapping Interview Process

Six specialists from different fields (economy, natural and social science) and ten local stakeholders with different organizational backgrounds (local policy makers, land owners, entrepreneur, environmental and nature protection specialists) were interviewed on an individual basis between May and June 2006, using a dedicated software package MC Mapper developed at SPRU. The average length of an interview was about an hour and twenty minutes. All interviews were recorded on a tape recorder and transcribed in order to provide detailed and rich information on the participants' consultations, justifications, and arguments.

During the interview, the participants went through the process of four structured series of stages, comprising: (a) discussion about proposed scenarios and identification of additional scenarios; (b) specifying the meaning of the criteria and identifying additional criteria under which the scenarios should be assessed; (c) scoring the performance of each scenario under each criterion; and (d) weighting the criteria in terms of their relative importance (Figure 4-4). After four stages were undertaken, the participants had an opportunity to consider the ranks and reflect on whether they conformed to their

initial expectations. The cyclic and iterative nature of the process enables participants to return and include further scenarios and criteria and revisit the scoring and weighting. Considering ranks by sensitivity analysis is a way to improve the transparency of the process and verify the stability of the results (Munda, 2008). It can determine whether the main results of the ranking change substantially when the weighting and scoring is different.

Figure 4-4: Multi-criteria mapping process (the continuous arrows represent (compulsory) connections between four basic stages of the process; the discontinuous arrow indicates the optional possibility to revisit the whole process again)



Stirling and Mayer (1999): own adaptation

The specialists who participated in the multi-criteria mapping interviews followed the same appraisal steps as the local stakeholders.

The Expert Interviewing Process

First we conducted interviews with eight experts from different fields (economy, environment and social science). The experts were informed prior to the interviewing process that the results of their appraisals would only serve as guidance for the local actors in the event of any uncertainties connected to the

scientific information which the actors may find during the evaluation process. The first part of the interviewing process with the experts was discussion of the five scenarios, which they had been sent in advance. Since their evaluation served only as help for the actors, there was no reason to offer them the possibility to develop any additional scenarios. As a next step, the experts focused only on the criteria matching their specialization, and as later on in the case of local stakeholders, they chose the criteria according to their own preferences. The specification of each criterion, as had been agreed by the actors during the participatory workshop, was presented to the experts. The experts were asked to score each scenario under the criteria matching their specialization. This was the most important part of the interview because that information should help the actors with their appraisals. The final step – the weighting, by contrast to scientific and objective scoring - is a subjective value judgement. Thus the experts were told that their weighting will not serve as a source of scientific information for the actors. Although the experts did the whole multi-criteria mapping process, the only information used for the actors' process was their scoring of the criteria.

The Actor Interviewing Process

During the interviewing process, the actors discussed the proposed four basic (compulsory) scenarios and one additional (optional) scenario. Depending on their judgements of completeness of the proposed scenarios, they could decide whether they wanted to identify other scenarios or focus only on the four basic scenarios. Although the scenario development process was based on a review of appropriate literature, the interviews and the participatory workshop, some of the actors might find it necessary to add new scenarios, especially those not attending the workshop. This enabled the actors to address any issues which they felt had been neglected during the previous stages of the process; leaving the overall scope of the exercise relatively unconstrained. At the same time, discussion and clarification of each scenario ensures better understanding and explains previous shortcomings of scenario story lines. In the next step of the actor interviewing process, the specification of the meaning of each proposed criterion was carried out. Although 12 criteria had been selected based on the weighting made during the participatory workshop, actors were allowed to select

any other criterion from the primary list or identify additional criteria under which the scenarios should be assessed. Having identified the appraisal criteria, actors were asked to assign a performance score to each option under each criterion. To help them with the so-called technical aspect of the appraisal, they could use the experts' scoring. However, they were free to assign different scoring based on their own knowledge and expertise as professionals or representatives of the policy, forestry, tourism or nature protection sectors. In this part of the process, actors go through each criterion and give each scenario a performance score under that criterion. Scores are made on an arbitrary cardinal scoring scale – it is the intervals between scores rather than absolute values that matter. Actors can use any scale with which they feel comfortable, such as 1 to 10 or 1 to 100, with higher scores indicating better performance (Stirling and Mayer, 1999; McDowall, 2006). To capture uncertainty and variability around the performance of particular scenario, actors were asked to assign both an optimistic (high) and a pessimistic (low) score. They were, however, asked to justify those differences. When actors felt neither uncertainty nor variability was an issue, their optimistic and pessimistic scores could be identical. Once the scoring was complete, the actors were asked to express the relative importance of each of their appraisal criteria in terms of numerical weighting. Such a process represents subjective judgement.

The weighting reflects the relative importance of differences between the scenario performance under each criterion. The weighting is linked to the particular scoring. The compensability principle - the possibility of offsetting a disadvantage of some criteria by a sufficiently large advantage of smaller criteria - is applied. This weighting, multiplied by the normalised performance scores, produces an overall performance ranking map for each option. However, because the interviewees provide optimistic and pessimistic performance scores, the rankings are expressed not as single numbers, but as ranges of values. Actors can see the overall picture that their appraisal has produced, and are invited to reflect on whether this appears to conform to their initial expectations and feelings. During the discussion with the interviewer, actors can explore other weighting schemes, or revisit their criteria and scoring. However, such a sensitivity analysis does not work as a means to 'fix' the results, but to allow actors to confront possible inconsistencies in their

appraisal, or areas that they feel they may have underplayed or overplayed (McDowall, 2006).

4.4.4 Pathways and Formation of Development Plans

Compared to previous MCM studies, the dissemination of results was done in the way of providing for greater interaction and deliberation among participants. A second participatory workshop was organized in July 2006, where the results of the whole process were presented. During this workshop, the participants were familiarized with each step of the process and their linkages. The rankings of scenarios were presented in a heuristic way, followed by a discussion of the possible consequences and uncertainties of each action. At the end, the participants agreed to meet again to discuss more deeply the main issues raised during the process, especially those that they felt to be wrongly interpreted or misjudged by other participants. This deliberative meeting was organized without the suggestion of the research team and took place in October 2006. In order to help the actors to have a coherent overview of the process and results of the process, a report was written in the Slovak language and distributed to the participants.

4.5 Results and Discussion

This section gives an overview of the initial results from the participatory multi-criteria appraisal. It is comprised of four parts; the first part describes the mode of engagement of the participants in the multi-criteria process and their initial responses to the scenario development, their responses to the criteria content, scoring and weighting, and the expert involvement. The second part explores the results of the appraisal, the ranking in terms of criteria and issues. Part three reports on the pattern of uncertainties on which the ranking depends. The last part explores how the ranking picture changes under different perspectives, by trying to group participants' appraisals first in terms of their institutional backgrounds, and then in terms of their attitudes towards the dynamics and environmental and economic implications of tourism.

4.5.1 Scenarios

Altogether, five scenarios were appraised. Most of the stakeholders decided not to evaluate scenario number 5 because that scenario was understood as marginal for the National Park area. One stakeholder (park administration representative) suggested to make a sort of hybrid or mix of scenarios 3 and 5, proposing that scenario 3 “Appreciation of nature” deal with the rural area situated further from the park borders as well (scenario 5). Another participant expressed concern about scenario 2, especially about its focus on different economic activities not just tourism. However, the participants did not refuse to evaluate any of the scenarios.

Some stakeholders had a general problem with evaluating the scenarios, as they did not understand them as hypothetical and future developments but as actual states. A common feature of the appraisal was an attempt to allocate various specific activities and actors from the real life of the region to each particular scenario. This means the participants tried to associate all scenarios with recent events and their actors. For example, scenario 1 was understood as more or less business as usual: the endeavour of entrepreneurs to focus on individual activities due to lack of co-operation and state support to the area. Scenario 3 was automatically referred to the Park Administration and their policy, and scenario 4 was attached to the association of municipalities. This may be partly because the participants are accustomed to evaluating strategies and policies, but are not so much used to evaluating possible alternative goals, as they admitted, finding it difficult to evaluate future. They acknowledged that the current problems and situation are more important to them and that they do not focus on distant future.

As the scenarios contain lot of different elements and information and thus some ambiguity in interpretation, the participants were not always focusing on the same aspect of each of the scenarios. For instance, in relation to scenario 3, some participants concentrated on the positive effect of the strict rules and better monitoring and co-operation, while others focused on the negative effect of that, such as the restrictions in economic development. This reflects the subjective preferences towards different interests and pathways in development

of the area and as one participant (municipality) remarked, it might be difficult to judge objectively.

"It is very difficult to score the scenarios, because when I looked at them from one angle and awarded just 2 score points to any of those scenarios I can easily find justification for that, but on the other hand I can look from a different angle and award 8 points and it can still be considered a valid interpretation."

Therefore, it is necessary to bear in mind participants' subjective preferences, especially in the aggregation procedure in terms of the justification of their scoring.

Already at the beginning of the appraisal, prior to considering the criteria and the scoring, several participants had identified their favourites, meaning their priority scenario, or sometimes they were trying to rationalize personal reservations to unpopular scenarios. For example, one participant (tourism entrepreneur) commented on scenario 4:

"I'm not in favour of this because this is the ambition of the association of municipalities and they have a strategic position, so probably this one is the most supported one."

Another participant made the following statement about scenarios 3 and 4:

"I'm really interested in this scenario because you can see in it co-operation of all stakeholders, unlike in Pan Park where the others would be just statisticians."

This strategic behaviour can bring in some misinterpretation of the reality, but in the participatory approach where one has to consider subjective interests and preferences, it is natural and inevitable to some extent.

The following statements are participants' specific comments prior to the appraisal of each scenario. They reflect the participants' general positive and negative reactions to the plausibility or likelihood of each scenario.

Scenario 1 "Choice and Quality"

The majority of the participants' initial comments on this scenario were negative. However, that does not mean that this scenario was automatically rejected. Not all actors had specific comments prior to the appraisal. They recognised this scenario as the current situation or at least a continuation of the current situation, which they considered dissatisfactory. As one municipality representative said:

"We already have such a model here but we have seen that it cannot work."

Two participants felt that the biggest disadvantages of this scenario are the individual and uncooperative features of the tourism development. A Park Administration representative commented:

"Everyone is playing their own game, it sucks."

An NGO representative made a similar comment:

"Everyone is playing in their own field."

A few participants expressed their reservations about foreign investors, especially on the uselessness of big investment by foreign investors. A municipality representative pointed out:

"This one has the possibility of foreign investment, arrival of bigger companies; yes it's nice but I think we are able to do it on our own."

None of the participants identified any positive aspect of this scenario prior to the appraisal and before a deeper analysis of the criteria.

Scenario 2 "Celebration of Diversity"

Several participants did not consider this scenario attractive due to the low orientation on tourism and did not see any possibilities of solving their problems. One (tourism entrepreneur) felt that this scenario was not comparable to the others because it does not represent the vision of tourism in the area:

"How is this connected with tourism? This is just an individual ambition of the municipalities, it will not help tourism development in the area."

An NGO participant was discouraged by the expressions diversity and diversification, in particular in connection to the economic diversification and by the top-down nature of the scenario due to the state support:

*"If the state supports the development in the area, then it will also dictate the rules."
... "Behind this economic diversification I am picturing some ecological catastrophes."*

In general, the participants did not perceive this scenario as a threat to the area and most of them had neutral comments. They can be summed up by the statement of a Park Administration representative:

"If a small industrial park is built in the surrounding area, it is not a problem for me; I do not care."

The overall opinion about this scenario is that although it is likely and plausible, it does not deal with the issues of tourism and the related conflicts. Participants saw the future of the area in tourism development. Several participants expressed some uneasiness at the likely state support in the scenario.

Scenario 3 "Appreciation of Nature"

Feelings about this scenario were in strict opposition. Several participants had negative opinions about this scenario, due to some nature protection restrictions. As a representative of an association of municipalities put it:

"Pan Park doesn't want to increase the number of tourist paths, they want to close them."

There were several actors who perceived this scenario as an initiative of the Park Administration. Due to the low trust to this organization and the low information about the its benefits, they believed that Pan Park does not allow any room for collective decision-making and that it strictly focuses on nature protection without the possibility of any tourism development. One municipality representative said:

"In Pan Park the others would be just statisticians, and in reality it will be focused just on nature protection, we would not be able to do anything there."

However, for others, Pan Park obviously represents a sensible and desirable system. The Park Administration representative, who clearly supported this scenario, felt that this future would bring more rules to the management of the park and solve the overexploitation issues. One municipality representative also clearly supported this idea due to the possibility of economic benefits which marketing the Pan Park logo can bring and stated:

"It would be good if the park had a logo, because if the visitor comes and sees the logo, they will have a guarantee that the services are of 100% quality"

Scenario 4 "Responsibility for Nature and Community"

In general, this scenario received a lot of positive comments. All participants recognized this scenario, especially its aspects of co-operation and bottom-up characteristic of decision-making, as a major part of the future development.

Most saw it as the only sustainable and feasible scenario, given its reliance on teamwork and umbrella organizations. The association of municipalities representative made a particular comment on this kind of umbrella organization:

"I like the idea of the existence of just one organization focusing on the safety of visitors."

The municipality actor felt that such participation of local stakeholders without the exclusion of the Park Administration would make the management of the park more robust:

"All stakeholders participate in the development of the potentials of the park, and the Park Administration also has some competencies; this one could solve a lot of conflicts between nature protection and municipalities."

However, the other municipality representative was concerned about the implementation of the co-operation, which is based on voluntary participation without strict rules for the whole area of the park due to its relatively large size and diverse actors and social roles:

"This is possible in some areas but it cannot be implemented for the whole national park."

Scenario 5 "Traditions and local culture"

As already mentioned, this scenario was not interesting for most of the stakeholders. Six participants felt that this vision was not a serious candidate for development of tourism in the area. They perceived it as playing a minor role as a sufficient vision for solving the economic or social issues of the area. This opinion can be summarized by one municipality representative, who said:

"This is an extreme, I don't think it can work."

Unlike the other scenarios, this concept was new to many of the participants, but at least two of them thought it was an interesting addition to the overall set. Moreover, the NGO participant considered this scenario as very attractive for the region and saw it as a viable limitation of the negative effect of mass tourism in the national park:

"In particular from the point of view of nature protection it would be very good, because all tourism would be outside the park."

One participant, a Park Administration representative, considered this scenario fundamentally the idea of the Pan Park and suggested that it should therefore be included in scenario 3.

"It is the same as should be in Pan Park."

4.5.2 Criteria

As was described in Chapter 4.4.3 (Identification of evaluation criteria), the identification and definition of criteria were done in several steps. The in-depth interviews served as the initial motive for choosing the criteria. We focused particularly on the stakeholders' main problems, concerns, and priorities concerning the development of the study area. Based on this, the participants at the workshop on 18 October 2005 were offered six initial criteria. After the discussion and group work, 12 participants of the workshop proposed 35 criteria in four main thematic categories ("Accountability", "Equity", "Economic effectiveness" and "Environmental quality"). For many participants, the selection of criteria reflected the degree of concern to which the issue of tourism development was presented by the different groups of actors.

The second step consisted of a process of weighting the criteria. Each group of participants had to distribute 100 points among all the criteria according to their priorities. From the total number of 36 weighted criteria we selected 12 that had scored at least 10 points (according to the literature, 12 is the appropriate number of criteria).

Those 12 criteria were presented to the actors during the multi-criteria mapping interviews. The actors were free to choose from the other criteria or invent completely different ones, but only three participants took this opportunity. The selected criteria reflected the dominant concerns frequently discussed among actors. For example, the NGO participant expressed concerns about a missing biodiversity criterion, and the association of municipalities representative implied criteria oriented on visitors: Balanced visitor rate, spatial dispersion of tourists and visitors' satisfaction feedback. The complete amount of criteria from the workshop and interviews is shown in Table 4-3.

Table 4-3: The complete set of criteria from the workshop and interviews

Environmental quality	Long-term economic effectiveness	Equity	Accountability
Natural scenery	Economic return on investment in tourism	Collective decision-making	Access to information/Availability of information
Air, water, soil quality	Proportionality of tourist services	Clearly defined rules	Consider scientific research
Traffic volumes	Balanced visitor rate	Equality of the environmental protection in the park and the municipalities	Public deliberation/participation
Sustainable forestry and agriculture	Employment in related sectors	Access to the market for all ethnic groups	Public statement/specification of fulfilment of tasks
Non-native species	Productive sectors	Social inclusion	Monitoring
Revitalization of disturbed ecosystems	Non-productive sectors	Equality of fees in partnership associations	Rule enforcement
Size of undisturbed ecosystem	Subsidiarity of funding	Equal/fair voting in partnership associations	Tourist satisfaction feedback
Flood protection	Quality of technical equipment		Non-contradicting rules
Fire protection	Quality of tourist services		
Elimination of litter	Spatial dispersion of tourists		
Elimination of poaching			
Efficient use of natural resources			
Biodiversity			

Although participants at the previous workshop had also suggested definitions of those criteria, the meaning and contents of those criteria differed for each participant (Table 4-4). The more easily measurable criteria such as employment were relatively consistently defined across the participants. Others, such as environmental or economic criteria, exhibited a wider range of definition. For example, the definition of the “economic return on investment” criterion included differences around using the benefits in the region or only for the tourism sector, or simply how much money one may gain from that particular scenario. Another example is the “natural scenery” criterion, where the suggested workshop definition was “*the preservation of natural scenery without any major intervention that takes the landscape away from its natural state (deforestation, construction of roads etc.)*”. The Park Administration representative suggested the definition for this criterion as:

“Buildings shouldn’t have a visual impact on the scenery.”

Table 4-4: List of criteria from the workshop, with definitions and comments by several participants

Environmental quality	Natural scenery	Air and water quality	Efficient use of natural resources		
Definition	The preservation of natural scenery without any major intervention that takes the landscape away from its natural state (deforestation, construction of roads etc.)	Low contamination of air and water	Availability of infrastructures (sewage system, water supply system)		
Actor's comments	- Cover broader area, not just core zone - Buildings shouldn't have a visual impact on the scenery		- Using geothermal energy		
Economic effectiveness	Return on investment	Proportionality of tourist services	Employment in related sectors	Quality of tourist services	Quality of technical equipment/Visitors' safety
Definition	Economic profits from tourism sector	Balance of tourist services	Number of jobs (part-time and full-time)	Tidiness, correctness, proportion of price and quality	Maintenance and repairing of technical equipment
Actors' comments	- Using the benefit in the region, - Return on investment in tourism sector - How much money one may gain from that particular scenario				- Quality in the sense of experience - It depends on human factor
Equity	Collective decision-making	Clearly defined rules			
Definition	Collective governance structure	Clear and known rules			
Actors' comments	- Co-operation and communication				
Accountability	Availability of information	Consider scientific research			
Definition	Character and style of availability	Considering research and scientific information in decision-making			
Actors' comments	- Active dissemination of info (via web, or info agency)	- Economic, environmental or other			

4.5.3 Scoring

Many participants found the scoring difficult due to the significant uncertainties or variabilities in the performance of the different scenarios under the particular criteria. In particular, participants had difficulty scoring the scenario on the social criteria (accountability and equity), and especially scenarios 2 and 5. This is usually to be expected due to the long-term character of the scenarios and unpredictable future (McDowall and Eames, 2006).

During the scoring, several participants chose to skip the optional scenario and the criteria that had been identified in the previous stage of multi-criteria mapping interview, because they felt that the scenario was not important because it did not deal with the national park as such. Concerning the deletion of criteria during the scoring, several participants realized that a particular criterion was already included in another one.

One query that sometimes arose was how come that all the criteria can be applied to all the options. Some options genuinely seemed either good or bad under a given criterion, occasionally the participant considered a criterion irrelevant to a particular scenario. Sometimes the participant had difficulty scoring the scenarios on the criteria, due to the little relevance in distinguishing between the different scenarios. For example, participants could not find any relevance of scenario 2 to the quality of tourist services, or felt that scenario 5 would not influence visitors' safety as it focused on the rural area around the park and did not specify maintenance of tourist technical equipment.

Moreover, the difficulties scoring were influenced by the variability, depending crucially on the context, or by the significant sensitivity to certain particular assumptions that might seem equally reasonable. Although all the participants had been familiar with the scenarios prior to the interviews (they had been working with the scenarios at the workshop, and received the complete scenarios via mail two weeks in advance), they frequently asked for explanation and sometimes used their own definitions. The scoring was often influenced by how the participants thought the scenario would really work in practice:

"If you ask me whether Pan Park is good, I would say yes; if you ask me whether Pan Park is good as it is presented by the Administration, I would say no, and do not want to be associated with it at all. I cannot agree with closing tourist paths, but I think that what the Administration is trying to present here is not the real Pan Park."

The concern about actors' real behaviour was often the reason for uncertainty in scoring. The quality of tourist services or return on investment in the region seemed to depend upon how caring the entrepreneurs would be.

"Whether they return the investment back to the region is really questionable: they might go to Paris instead and buy shoes."

The importance of context was also seen in the scenarios according to the collective-decision making criterion. There was some scepticism about the extent to which voluntary co-operation without strict rules can be manageable, particularly in scenario 4. On the other hand, the strict rules in scenario 3 posed negative consequences for some actors, such as a restriction of economic benefits.

As the context of options influenced the numerical values of the scores, it also influenced the uncertainty with which these scores were expressed. Thus most of the participants found it useful to use optimistic and pessimistic scores to express those uncertainties. However, one participant (Municipality) felt unable to provide such a range, and scored all scenarios with just a single point. For him, the large degree of uncertainty in any of the scenarios meant that trying to express it was not possible and therefore a single point was seen as preferable.

"Each scenario, when we are talking about future, is uncertain, more or less to the same degree, so I don't see the point of using a range. (Municipality)"

One participant (NGO), although he felt that uncertainty might exist, could not tell in which scenario the uncertainty was higher or lower and used a range of 2 points for all the criteria in all the scenarios.

Another dimension of uncertainty was whether the participants had the particular knowledge required and several of them raised questions over their ability to score subjects in which they did not have any expertise.

"I don't think I have enough information whether the uncertainty is higher in one or the other scenario, and I don't want to just guess, that would not make sense." (Municipality)"

In this instance, some of the actors emphasized the usefulness of the experts' scoring and consulted their appraisals.

During the process of scoring, we observed several examples of what might be seen as strategic behaviour in the scoring of the scenarios, where participants' justification of high or low scores was not explained by reference to some analytical arguments or available evidence but rather was clearly influenced by purely personal subjective values on the particular scenario. For example, concerning the criterion "proportionality of tourism services" the Park Administration representative pointed out:

"Ohh lets give Pan Park 10 points, I have to defend "my" scenario."

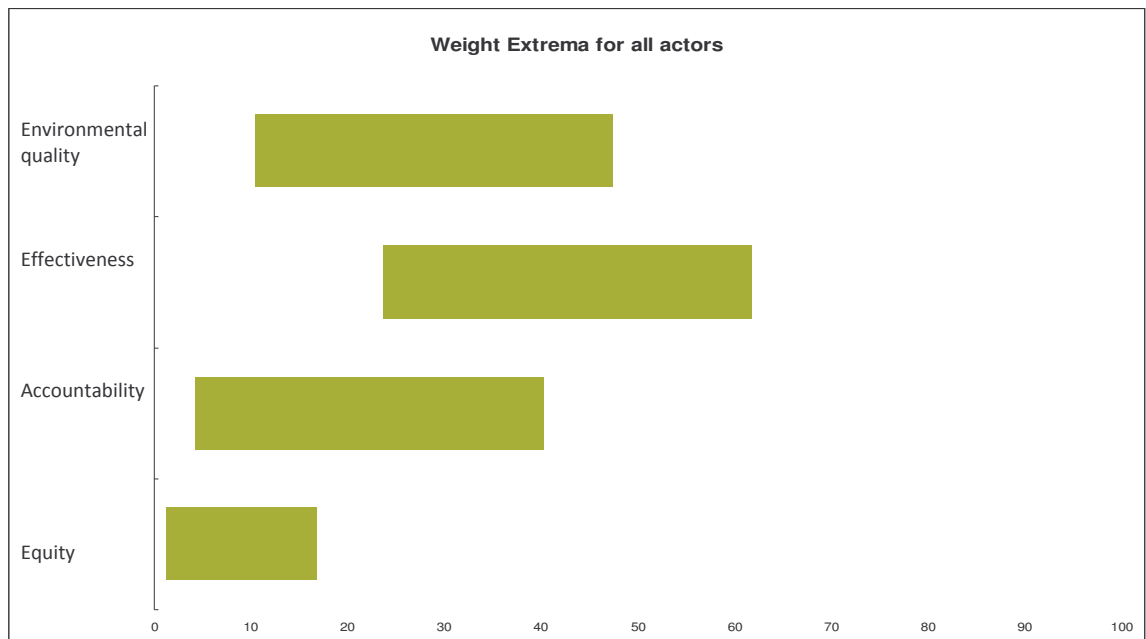
4.5.4 Weighting

The chart below (Figure 4-5) is intended to display the relative magnitude or importance of weighting assigned to different groups of issues by all participants. The weights express their subjective values concerning the relative importance of the different criteria. Criteria in the environmental quality category obtained the second-highest weight, meaning that those criteria were judged by participants as the second most important. Both groups of social criteria Equity and Accountability received much less attention. Besides the number of participants defining the criteria, the length of the bar expresses also the differences in the weighting. Thus, we can see from this overall picture that there is quite a strong disagreement in the preferences towards the environmental criteria.

The highest weight was attached to the category "long-term economic effectiveness". This group included criteria that were possibly the best in representing the participants' own subjective attitudes to the process. For the Association of entrepreneurs it was "balanced visitor rate", and for the Association of municipalities "Visitors' safety – quality of technical equipment"

Figure 4-5: Criteria weighting

On the vertical axis, the chart displays all the issues that were developed in the analysis by all participants to cover all the criteria; on the horizontal axis the chart presents a scale of 0 to 100 to express the overall value of the weights attached to each issue. The green bars show the ranges between the lowest and highest weights attached to the issues by the participants. The length of the bars depends on the differences in the weightings and on the number of participants weighting the criteria.

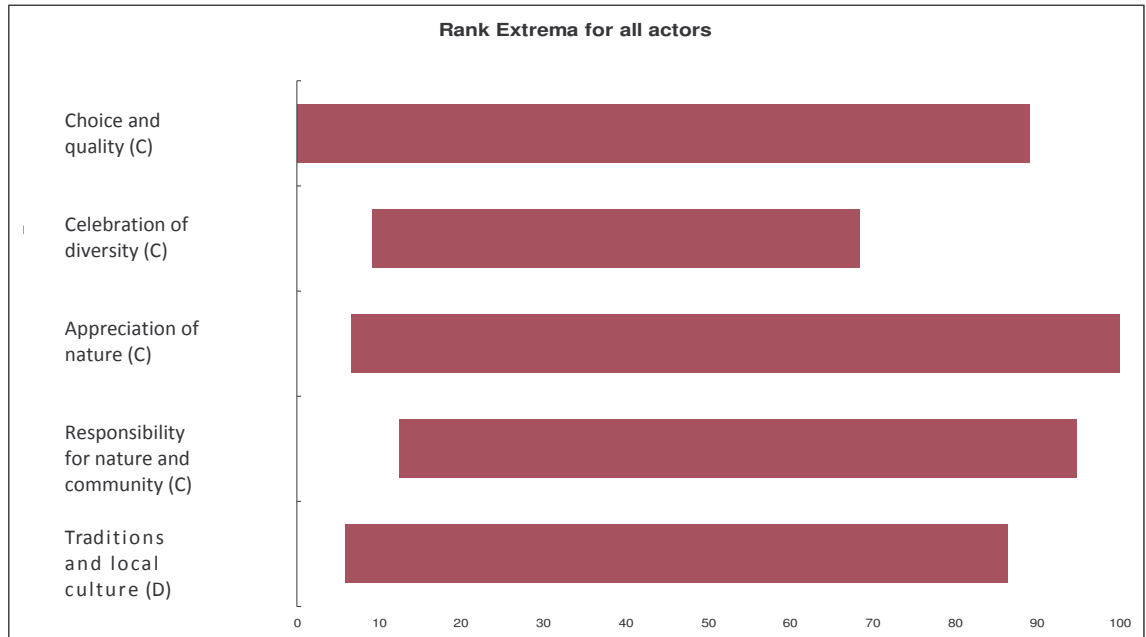


For some participants, the weightings did not mean to prioritize the criteria but rather they understood it as a response to an issue in the region. For example, the association of municipalities representative declared that since a sewage system and water supply system existed in the municipality, one do not need to prioritize it although in general they felt it was of high importance.

4.5.5 Ranking of the Scenarios

Figure 4-6 displays the overall rankings for each of the five scenarios as seen by all the participants. However, these results can produce only a very rough picture of the appraisal, and can be used as a comparison to examine where individual participants may differ clearly from the picture as a whole.

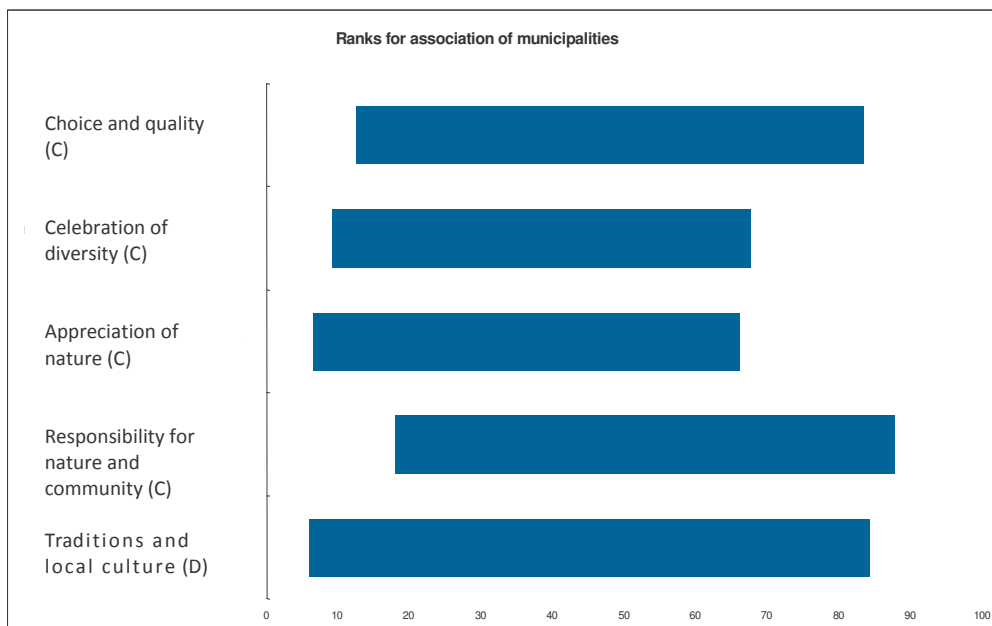
Figure 4-6: The overall rankings for each of the five scenarios as seen by all the participants

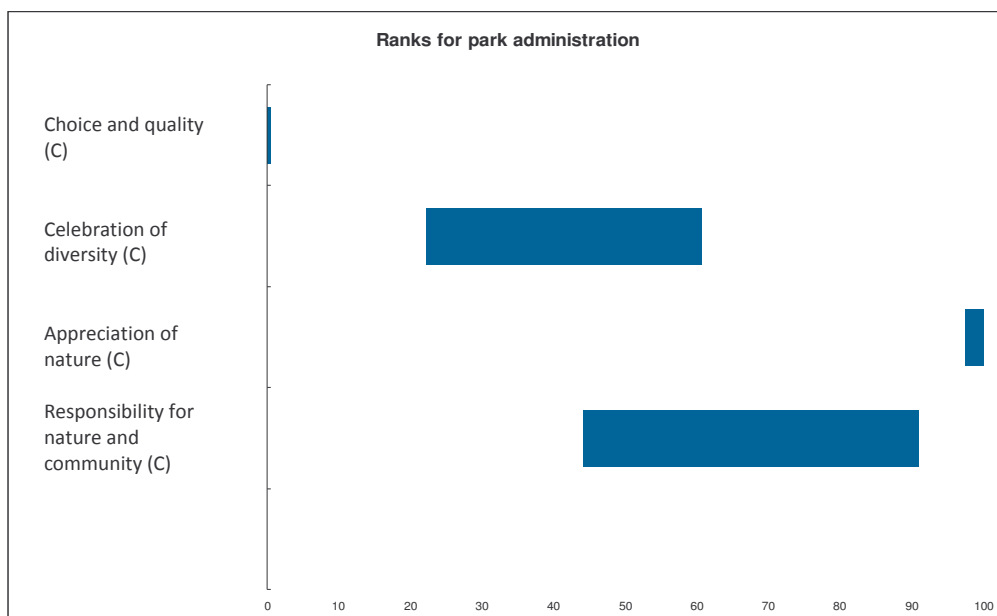
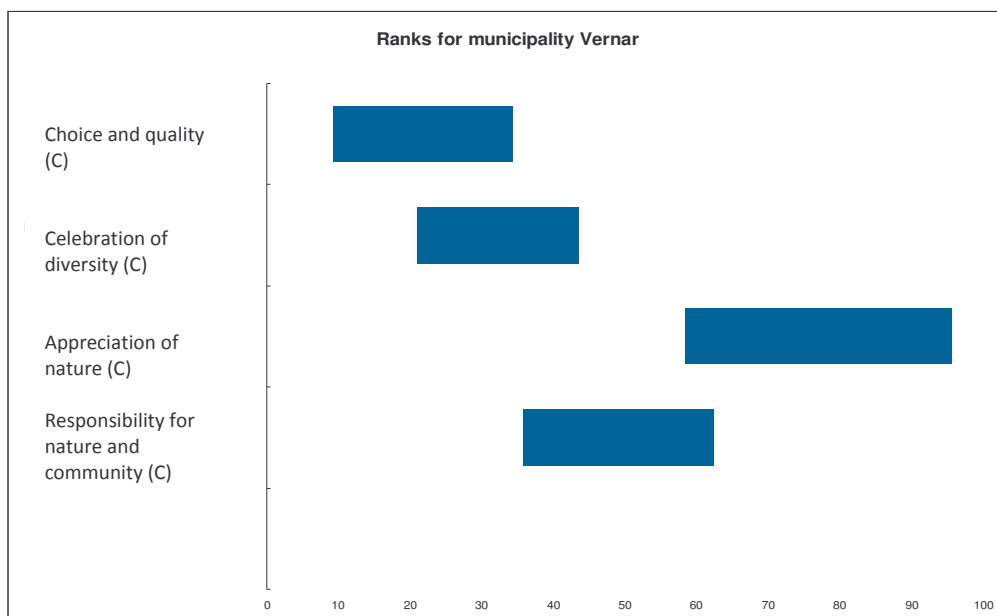
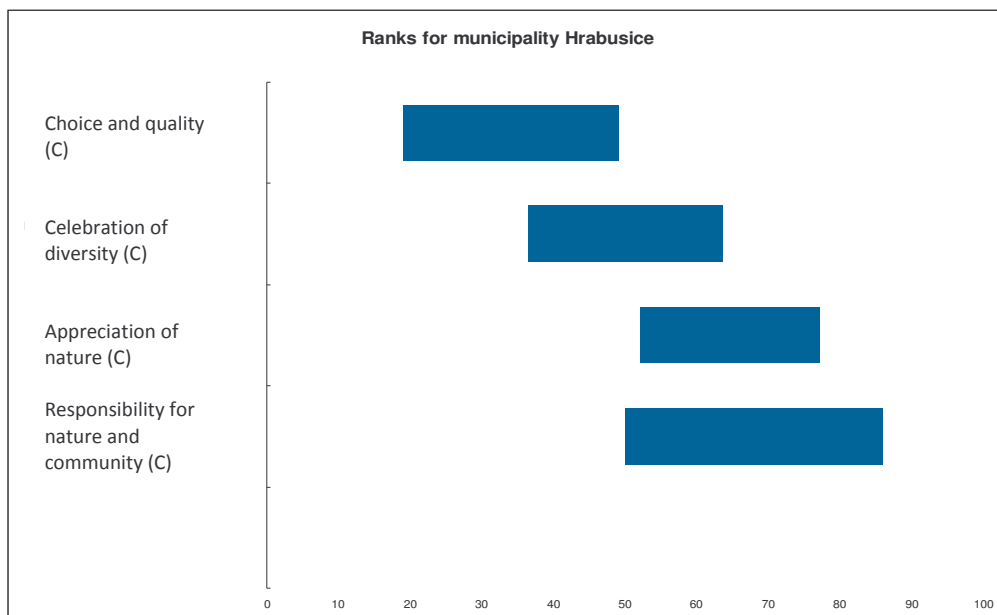


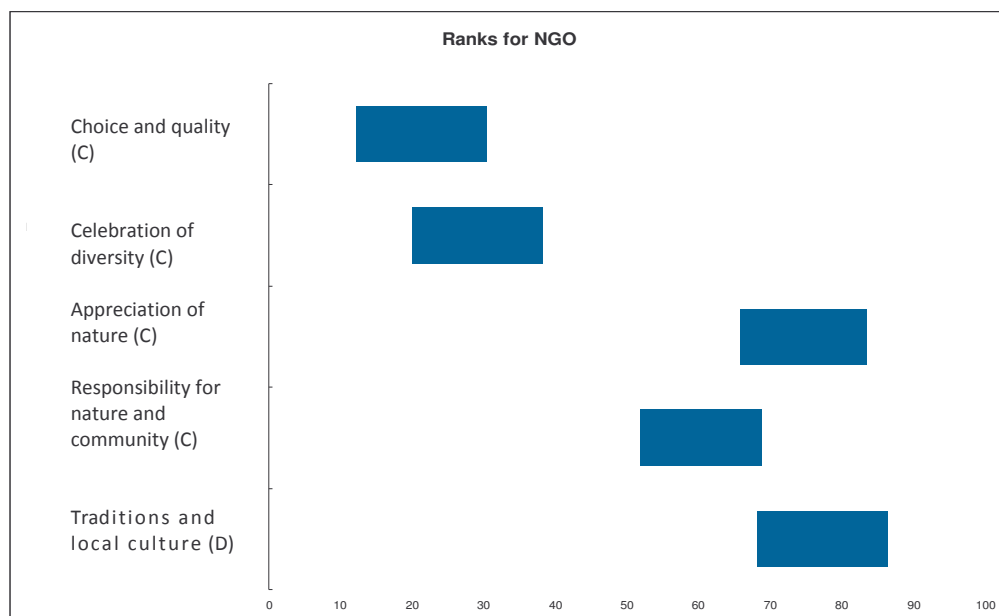
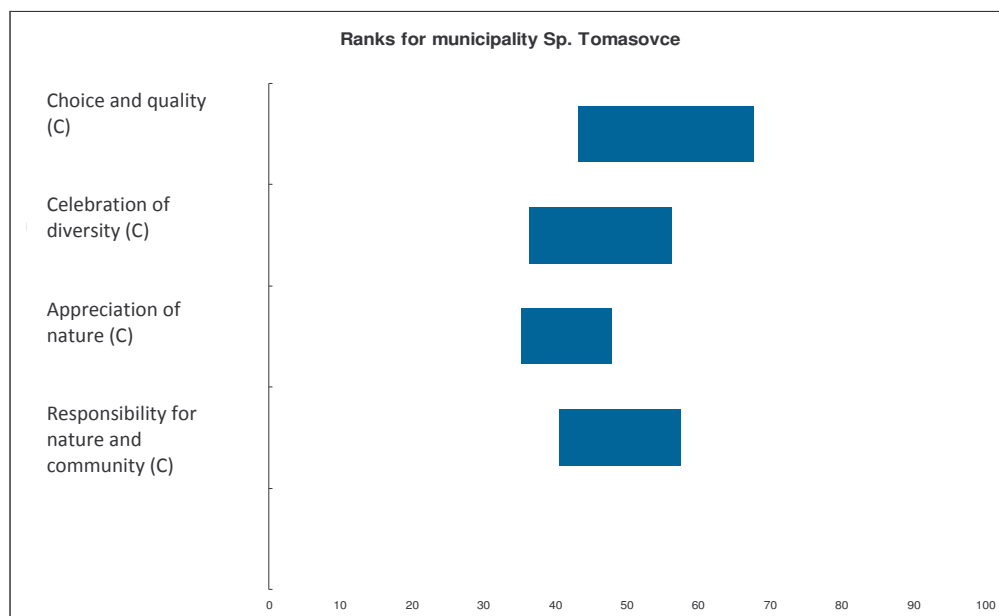
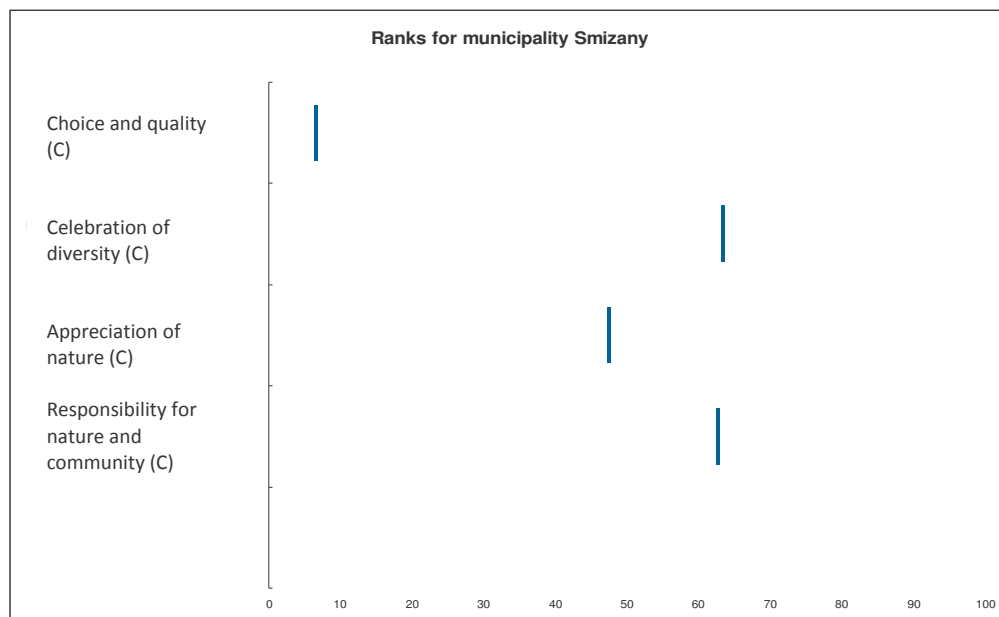
The following diagrams (Figure 4-7) show the final rankings of all scenarios by each of the ten participants.

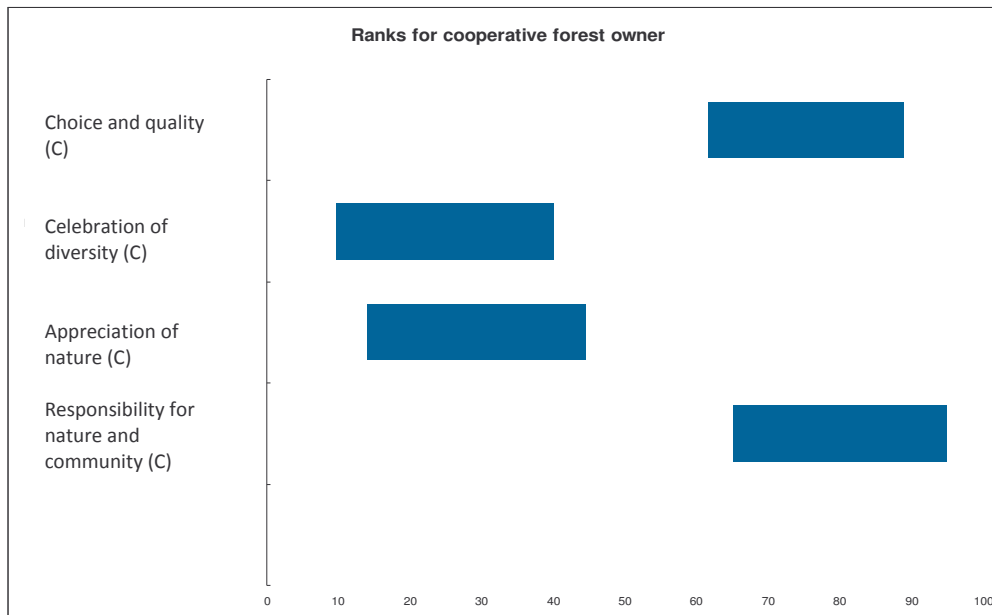
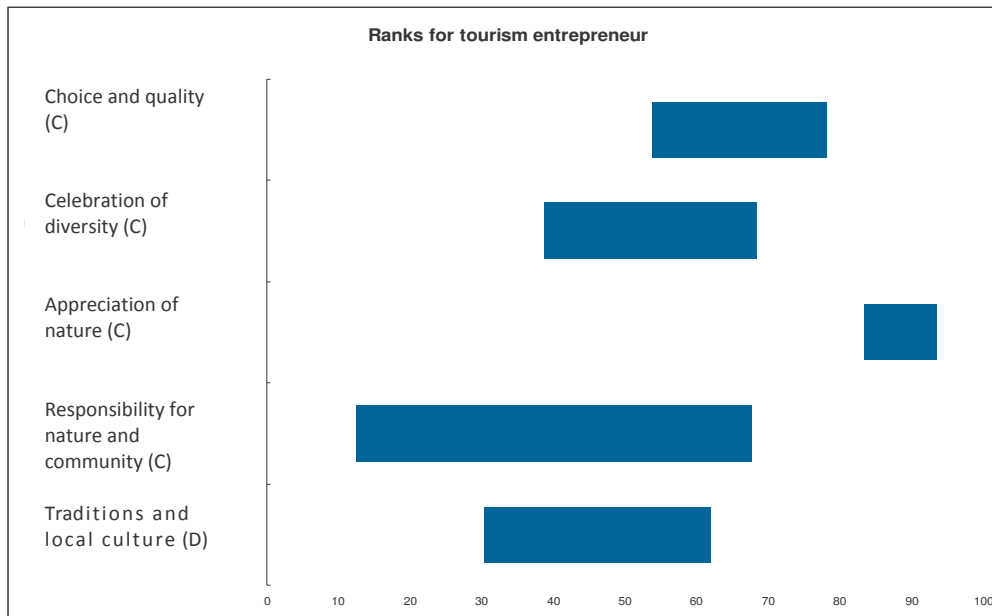
Figure 4-7: The weighting score for each participant separately

The order of scenarios is the same for each figure: "Choice and quality", "Celebration of diversity", "Appreciation of nature", "Responsibility for nature and community", "Traditions and local culture". The horizontal axis represents an arbitrary scale from 0-100 expressing the ranks; higher value indicates better performance. The lengths of the bars show difference between optimistic and pessimistic scores providing indicator of uncertainty.









These outputs given by each participant result in very different ranking orders of the scenarios compared to each other. This confirms the controversial character of the issue, with no clear winner or loser. However, each of the individual scenarios is found to performed the best and the worst from the viewpoint of at least one participant. Therefore, some key features can be identified. The “Celebration of diversity” scenario performed the best from the perspective of only one participant: a municipality Smizany representative. In addition, this municipality representative was the promoter of the ideas for this scenario during the in-depth interviews. The scenario “Responsibility for nature and community” performed clearly the best from the perspective of four participants. All those participants represented municipalities or had close connections to the regional association of municipalities or were landowners in the park. The “Appreciation of nature” scenario performed the worst from the perspective of two participants. The results from the interviews confirmed that one of those participants was in strict opposition and conflict with the Park Administration. The performance of each individual scenario is discussed below.

Scenario 1 “Choice and Quality”

In the view of the Park Administration, this scenario performed worse than any other vision with zero uncertainty, due to the lack of collective decision-making and the threat to the natural scenery of landscape. It also performed the worst in the view of the NGO participant, but the ranking of this option at its optimistic rank was higher than the pessimistic value for the “Celebration of diversity” scenario. However, not all the actors considered this scenario dangerous to natural scenery of landscape. Some of them expressed the opinion that private entrepreneurs can use the natural resources better and more efficiently and that because the national park is protected by law, there is no chance of changing its natural scenery. In contrast, one actor ranked this scenario as the best performing. The support of private capital and better representation of

the quality of tourist services by private investors were the driving factors in this participant's view.

Scenario 2 "Celebration of Diversity"

Eight participants, ranked this scenario as the worst or second-worst performing under both pessimistic and optimistic assumption, while one municipality participant saw this scenario as the best-performing vision under the most optimistic assumption. In general, it is possible to say that the actors had an identical opinion about this scenario. This negative ranking reflects the participants' low interest in diversifying the economic activities in the area and scepticism to unrecognised benefits of using the potential of the national park for tourism. On the other hand, a few participants highlighted areas in which they felt this scenario would have positive effects on the study area. Most of them stressed the increasing employment and improving of infrastructure as the possible benefits of this scenario.

Scenario 3 "Appreciation of Nature"

Four actors ranked this scenario as the best, mostly due to its performance of co-operation and collective decision-making and the logo for quality. In the view of another two participants, this scenario was relatively good: the second-best vision. On the other hand, the representative of the association of entrepreneurs felt that the logo of the Pan Park and rules and principles adopted from a foreign international organization should not be the way to attract tourists to the area and develop the region. He saw the potential of the development in local co-operation without any outside help. An association of municipalities participant saw this scenario as the worst possible under the most pessimistic scores. He was worried about the restriction and nature protection prospect of this scenario. Others were also sceptical of the real performance of this scenario because they did not have positive opinions of Pan Parks as presented by the Park Administration. Another representative of entrepreneurs pointed out that he gave high scores to this scenario because he believed that in reality this scenario was the best one but if he were to award points to the idea as presented by the Park Administration he would give a very low score.

Scenario 4 “Responsibility for Nature and Community”

Under the optimistic assumptions, none of the actors perceived this scenario as the worst one. In the view of four actors, this scenario was ranked as the best-performing and others ranked it relatively high. However, in most of the cases, this ranking received a high degree of uncertainty. Some actors were sceptical of the possibility for co-operation and collective decision-making on a voluntary basis, without strict and clear rules. Mostly due to this uncertainty, it was the worst-performing option in the view of the representative of entrepreneurs under the most pessimistic assumption.

Scenario 5 “Traditions and Local Culture”

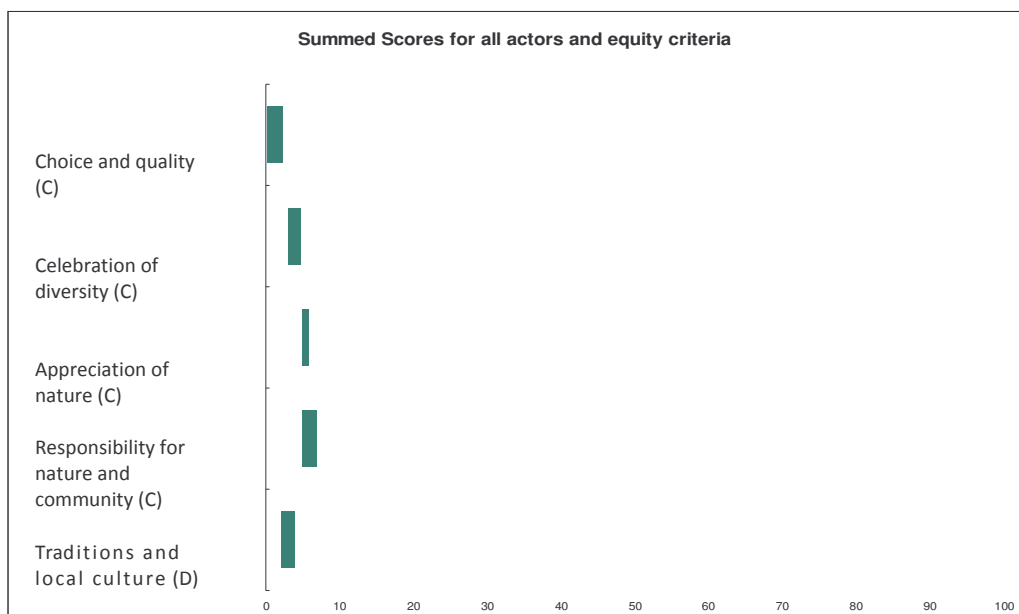
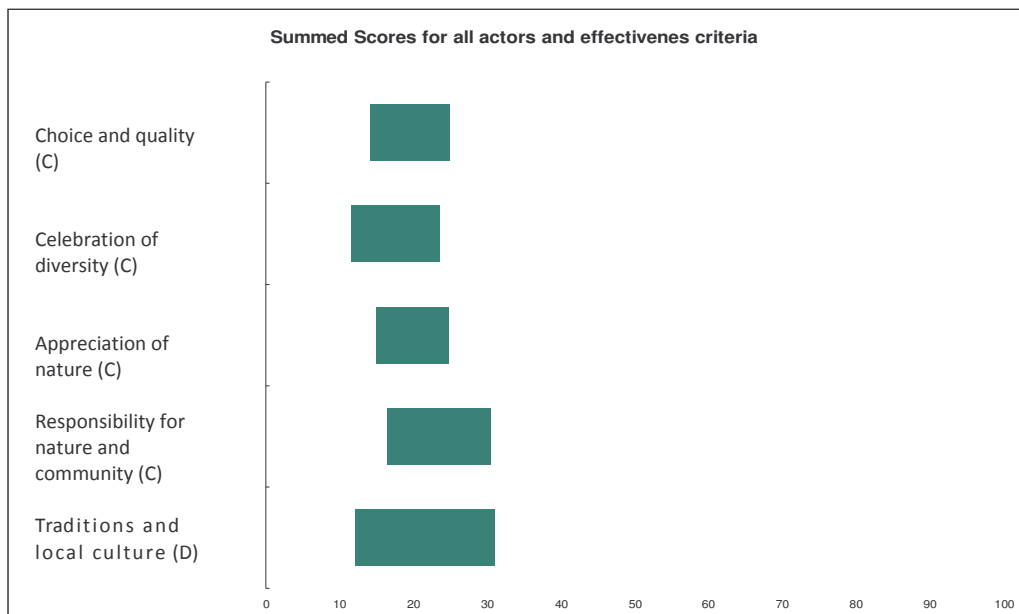
Only 4 actors appraised this scenario. However, it performed very well, although the representative of tourism entrepreneurs saw it as performing the worst under the best possible assumption. In the view of the municipality representative, it was the worst-performing option under the most pessimistic assumption. Where this scenario performed relatively poorly, this was due to the participants’ opinion that most of the criteria are entirely neutral in its performance, and scored the scenario in the middle of chosen range. Two participants saw the benefit of this scenario in spreading the visitors outside the park and decreasing the negative effects of tourism inside the park.

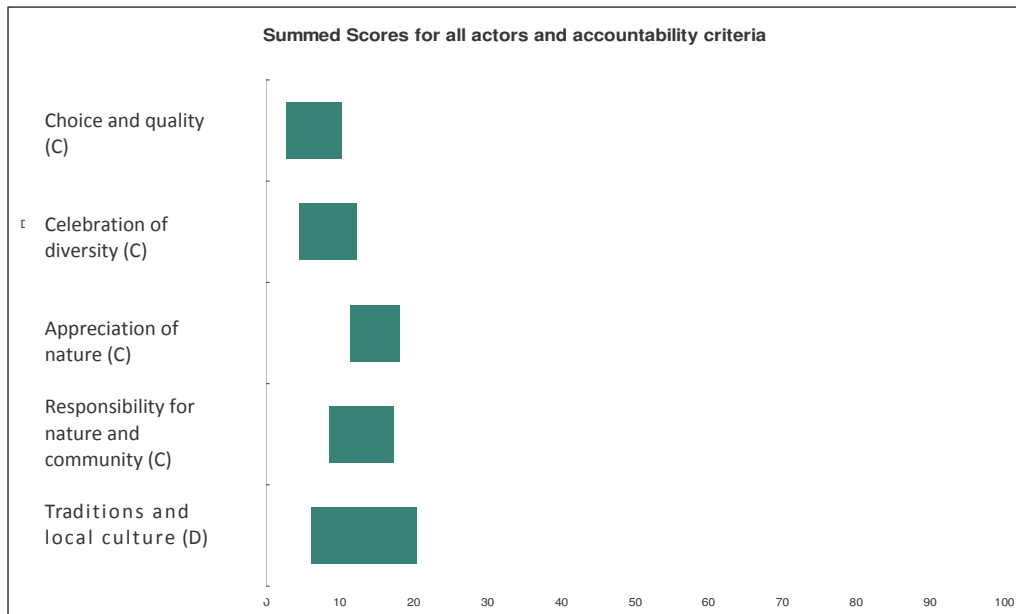
4.5.6 Displaying Aggregate Scores by all Participants by Different Issues

The patterns displayed in Figure 4-8 by the scoring under different issues are quite fragile; none of the scenarios clearly dominates across all issues. Three of the five scenarios scored most highly under one issue or another: “Appreciation of nature” (environmental criteria), “Responsibility for nature and community” (economic and equity criteria) and “Traditions and local culture” (accountability criteria). All but one option (“Responsibility for nature and community”), scored the lowest under one issue or another (Figure 4-8).

Figure 4-8: Aggregate scores by all participants by different issues

As a result, issue that on average received lower weightings (such as the equity group) have lower weighted scores for all visions than issues with higher weighting (such as economic)





Environmental Criteria Group

This group includes 3 criteria (Natural scenery, Air, water, soil quality, and Efficient use of natural resources). As seen in the figure 4-8 (Summed Scores for all actors and environmental quality criteria), based on the environmental criteria, the scenario “Appreciation of nature” is ranked the highest when the appraisals by all participants are examined as a whole. However, this is an aggregate picture, and three participants scored the “Responsibility for nature and community” scenario higher than “Appreciation of nature” in terms of environmental performance. Those actors were sceptical of the increase or improvement in infrastructures (sewage system, water supply system) in the “Appreciation of nature” scenario. The municipality participant felt that:

“Even if the Pan Park was interested in infrastructure, the chance of receiving funding for that is lower than in scenario 4, where municipalities are associated, so it is easier to obtain the funding for this issue.”

Under no viewpoint was “Choice and quality” scenario assessed as performing the best in environmental terms. In terms of weighting across the participants, the “*natural scenery*” criterion was clearly considered to be the most important criterion for the development of the region. In most cases the scenario “Choice and quality” involving large-scale construction of tourist facilities, tended to do less well.

Economic Criteria Group

Under economic criteria the “Appreciation of nature” scenario performed relatively poorly (Figure 4-8 - Summed Scores for all actors and effectiveness criteria), (scoring lowest from the viewpoint of the following participants: Association of municipalities, Association of entrepreneurs, Microregion, Municipality Smizany, and Municipality Sp. Tomasovce). Those participants expressed the opinion that the Pan Park restrictions of tourism development would limit the economic benefits for the region. Only one participant (Park Administration) differed strongly by rating this scenario the highest under all economic criteria. Although the “Celebration of diversity” scenario did very well in employment from the viewpoint of a lot of participants, in terms of the other economic criteria this scenario scored poorly. Interestingly, six participants rated the “Choice and quality” scenario as the worst under the economic criteria. They were mostly sceptical of the sustainability of foreign investment.

The most highly weighted economic criterion was the economic benefit and return on investment in tourism, although in general this criteria group was given lower weights than the other criteria groups. The understanding of the criterion “*Return on investment*” varied across the participants. For some participants, the returns concerned the entire region; the important issue was that the benefits would stay in the region. It was not important whether they would be used for infrastructure improvements or public spaces cleaning. For others, the return represented re-investment of the benefits to the tourism sector only. Other highly-weighted criteria from this group are the *proportionality of tourism service*, *Quality of tourism services* and *Visitors’ safety*, which is connected with the quality of technical equipment and tourist paths. A few participants added *Spatial dispersion of tourists* and *Balanced visitor rate throughout the year* to this criteria group.

The “Traditions and local culture” scenario performed as the third best, however the uncertainty with respect to these scores was relatively high. Participants were concerned about the size of the area in this scenario and the ability to guarantee tourists’ safety for the whole area. On the contrary, a larger area may result in better *dispersion of tourists* and thus this scenario did the best under this criterion.

Many participants saw significant variation among the scenarios in terms of those criteria. The pattern displayed by scoring of each participant is very heterogonous, with all but one scenario (“Traditions and local culture”) scoring the lowest from one viewpoint or another: “Choice and quality” (Municipality Verner, Park Administration), “Celebration of diversity” (Landowner, NGO, Entrepreneurs, Association of Entrepreneurs), “Appreciation of nature” (Association of Municipalities), “Responsibility for nature and community” (Municipality Sp. Tomasovce). Likewise, all options scored the best from one viewpoint or another.

Equity Criteria Group

Only two of the criteria (collective decision-making and clearly defined rules) from this group were weighted highly enough at the participatory workshop to be included in the multi-criteria mapping appraisal (Figure 4-8 Summed Scores for all actors and equity criteria). Although all participants were free to include any new criteria, none of them chose a criterion belonging to the equity criteria group. Most participants awarded collective decision-making scores in the middle of the scale. The “Responsibility for nature and community” scenario performed the best under the equity criteria. However, some participants were highly uncertain about the voluntary basis for co-operation and the establishment of clearly defined rules. The “Choice and quality” scenario tended to score relatively poorly, simply due to the content of the scenario, where co-operation among stakeholders was missing. Most of the participants saw this scenario as the status quo, where collective decision-making and clear rules are major issues. The criterion ‘*Clear rules*’ was the second most highly weighted criterion of all.

Accountability Criteria Group

Two criteria were generated and scored in this category (Figure 4-8 Summed Scores for all actors and accountability criteria): *Availability of information* and *Consider scientific research*. Although the scenario “Appreciation of nature” ranked third under the accountability criteria, the range between the optimistic and pessimistic scores was narrower compared to the first two scenarios (“Responsibility for nature and community” and “Traditions and local

culture”) given the necessity of strict and clear rules, required by the Pan Park association. From the viewpoint of eight participants this scenario performed the best or the second-best. In the aggregate picture, two scenarios (“*Choice and quality*” and “*Celebration of diversity*”) scored relatively badly, and the three others (“*Appreciation of nature*”, “*Responsibility for nature and community*”, “*Traditions and local culture*”) performed better under the accountability criteria. One actor (association of municipalities) added ‘Tourist satisfaction feedback’ among the accountability criteria.

4.5.7 Patterns of Uncertainty

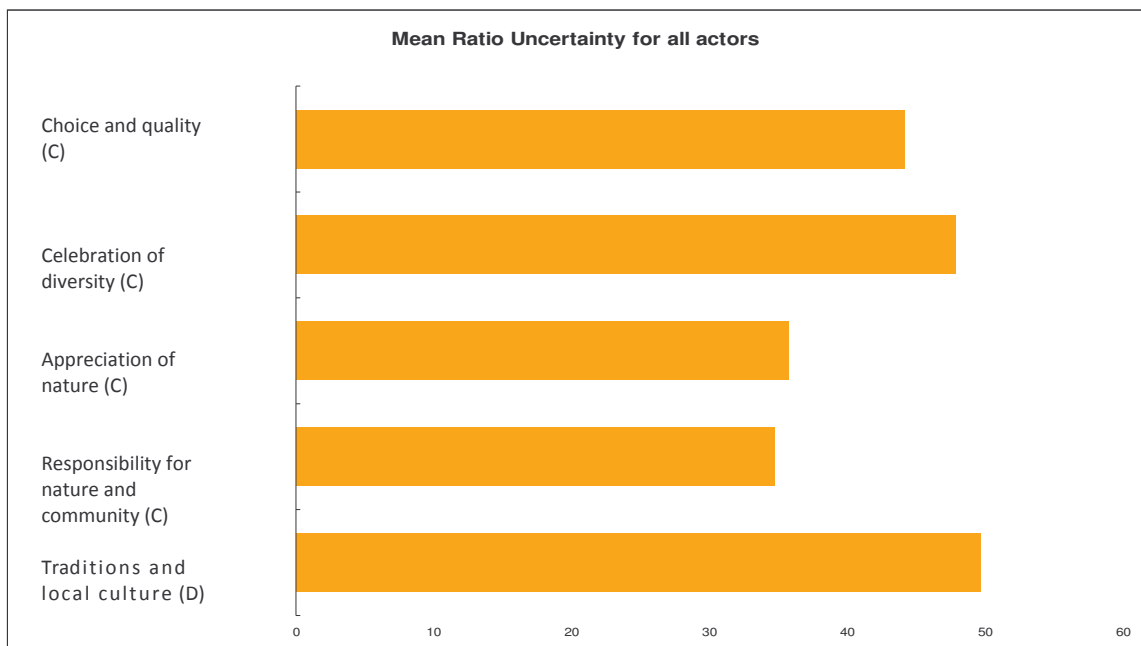
The main aim of multi-criteria mapping is not to find the single ‘right’ answer but rather use it as a ‘heuristic’ way of exploring the main dimension of a risk issue and establishing their key characteristics, relationship and relative importance (Stirling and Mayer 2001). While ‘mapping’ the different possible options, stakeholders can identify and explore the uncertainties, sensitivities and dependencies of the performance of a vision. Where the options are subject to uncertainty, ranks lie within the range of values. By analysing patterns of uncertainties of the range between the optimistic and pessimistic scores, we can observe which issues or visions are subject to greater or lesser uncertainties, where uncertainties are so big that they can change the ranking of the visions, and most of all, where the opportunities for reducing those uncertainties may be.

The degree of uncertainty has some impact on the ranking. Comparing the optimistic and pessimistic weighted scores shows that the ranking orders were different for the aggregate ranking and for the four individual rankings. However, for the rest of the participants the difference between the ranking orders under the optimistic and pessimistic assumptions were not as important as the differences between their perspectives. Uncertainty is also important in that the worst options rank higher at their best than the best options at their worst in the four perspectives and also in the aggregate picture.

We can see in the following diagram (Figure 4-9) that all the scenarios were quite uncertain, the highest degree of uncertainty being expressed with respect to scenarios 1, 2 and 5. Scenario 5 “Traditions and local culture” was only evaluated by four participants, most of whom were not fully familiar with the

concept of rural tourism. The least uncertainty was expressed with respect to the “Responsibility for nature and community” scenario partly because the participants themselves had developed the scenario at the participatory workshop and thus they were the most familiar with it. Although that was not true for the Park administration who expressed the least uncertainty about scenario 3 (“*Appreciation of nature*”).

Figure 4-9: The patterns of uncertainties



There was also a slight difference in the degree to which uncertainty was expressed with respect to the particular groups of criteria. In general, environmental and accountability issues were seen as subject to greater uncertainty than economic and equity issues. This is because *availability of information* and *considering scientific research* among the accountability criteria were felt by participants to be dependent on the broader national institutional and legislative context.

When explaining why the uncertainty arose, there was a variety of different factors affecting the different situations. The range between the optimistic and pessimistic scores captured the *uncertainty* about how well the vision would actually work (behaviour of foreign and non-local investors), *variability* within the vision (number of stakeholders in the decision-making process), and *sensitivity*

to wider contextual conditions, such as the state policy on tourism. The degree of uncertainty has to be understood spatially and temporally. Changing social and political conditions (political priorities, respectability of big investors etc.) can mutually influence the importance of those uncertainties; trust in foreign investors or the state can increase or decrease under the influence of those external and internal factors. In the scenario “Choice and quality” the most uncertainty was expressed about the foreign investors. The economic situation in the region is viewed as disadvantaged. The regional disparities are due to poor infrastructures, geographical barriers and underutilised human resources. These characteristics make the eastern parts of the country a ‘periphery’, unattractive for foreign investors. Moreover, there are substantial uncertainties concerning the arrival of foreign investors to the area not only in terms of their interest in the area but mostly about their behaviour and their capacity to improve the economic situation of the region.

“It is not sure how they would behave. If they were conscientious, then maybe.”

“They can get some profit but do we know if they are going to buy 4 BMWs?”

Scenario 2, “Celebration of diversity”, showed the greatest sensitivity concerning the state policy on tourism or rural development in general, particularly in the questions of financial and institutional support (compensation¹² or development programs and grants).

“Recently the state does not support tourism, maybe just really small support when a small entrepreneur manages to get a small amount of money for his B&B, but there is no governmental body making decisions on tourism, just a small section at the Ministry of Economy.”

The variability in scenario 5 “Traditions and local culture” consist in its broader area and thus increased amount of possible actors that should co-operate and communicate, or a fragmentation of activities, which might endanger the identity of the area.

¹² The Act on Nature Conservation, adopted in 1995, introduced compensations for the removal of opportunities and for the loss of potential income generation to private and municipal owners. A government decree to administrate such a right came into force at the end of 2001 and the application process has been very complex, intransparent and lacking state support. By the end of 2002, only two owners were able to get compensations; neither of them was from the SRNAP.

"If there are more actors in the association, sometimes just the strongest one is doing everything and the others are just free riders."

"Not everybody wants the same thing, they have different opinions on how to do things."

"If there are lots of actors and a large area, it's difficult to make decisions, because how can we influence what is going on over in Podhradie?"

The geographic distance in scenario 5 and thus a different common set of values of the communities makes co-operation and establishment of one common decision-making structure more difficult.

4.5.8 Patterns of Consensus and Diversity in Scenario Performance

Perspectives of Different Institutional Backgrounds

At the beginning of the MCM process, it was intended to group participants according to their organizational backgrounds. We were expecting that the organizational background will have similar influence on behaviour and views of participants. However, after the whole process it was obvious that participants in such a grouping had little tendency to share particular views on the scenario performance. Thus it was necessary to group actors who appeared to share comparable attitudes to the scoring of the scenarios and criteria weighting.

Alternative Perspectives on Scenario Appraisal

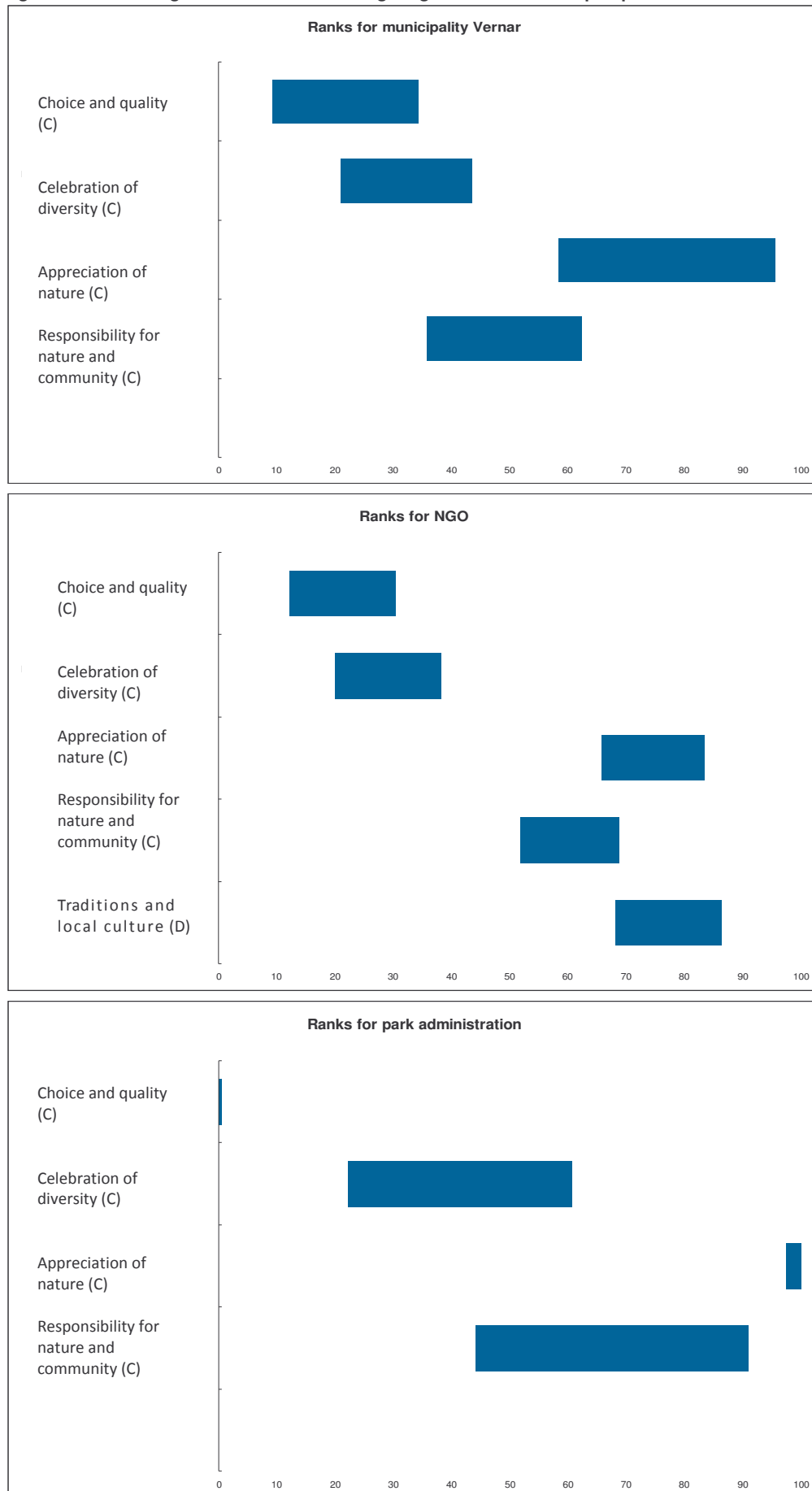
This part focuses on different possible alternative groupings of participants with similar patterns in the appraisal of the scenarios (definition and understanding of criteria, justification and reasoning of criteria weighting and scoring of scenarios). In some cases, however, these groupings do not reflect any particular common professional, organizational or sectoral affiliation. Factors such as locality within the park with different prevailing lower level rules, education or age of participants had influence on the similarities in appraisal of the scenarios. The complex interaction between those institutional, organizational, cultural and biophysical conditions influenced the behaviour of participants. The scenarios are presented in the following order throughout the figures: "Choice and quality", "Celebration of diversity", "Appreciation of nature", "Responsibility for nature and community" and "Traditions and local culture". The aggregate figures of the weighted scores are different from those

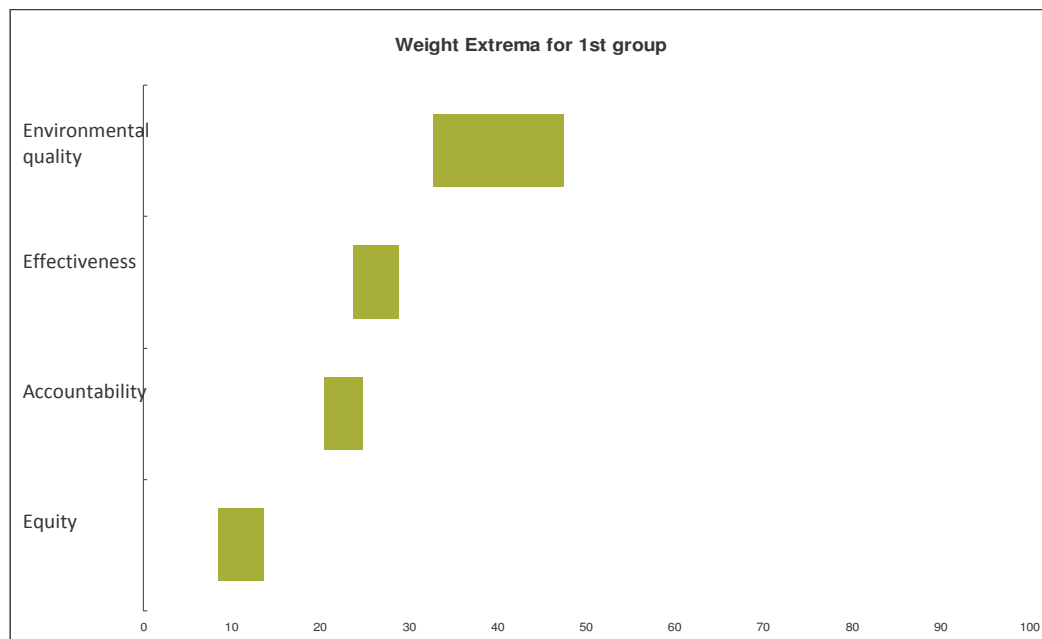
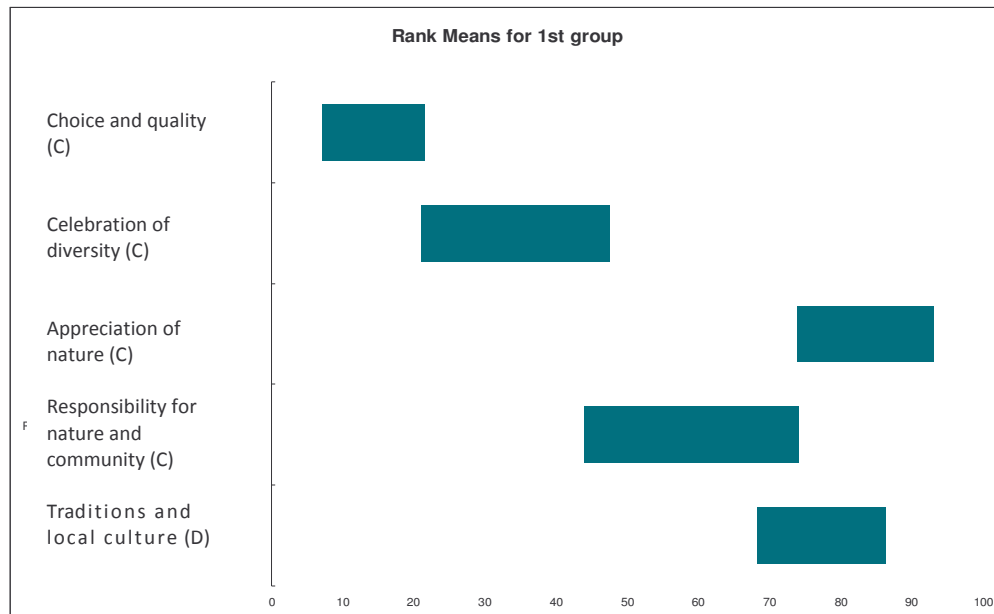
for the individual actors. The aggregate ones display average ranges and do not necessarily give as accurate an impression of the relative degrees of uncertainty.

First Alternative Perspective

This group comprises three participants: the *NGO* focusing on nature protection, Park Administration and one *Municipality* (Vernar). They all strongly opposed any mass tourism development in the park area and any other economic activities in the close proximity of the park (especially in the buffer zone). They all held strong views about the environmental consequences of the different development paths of the region, feeling that large and foreign tourism investors would strongly affect the natural scenery of landscape and would not bring any desired economic benefits to the local population. Although one of these participants was the representative of a municipality situated right on the border of the national park, with a need for the development of the municipality, he preferred rural tourism with educational activities. Thus scenario number 3, “Appreciation of nature”, where tourism and nature protection should be in balance based on the Pan Park principle, performed the best in the ranking. While only the NGO representative appraised scenario 5 “Traditions and local culture”, the municipality representative felt that the pattern of that scenario should be included in scenario 3. Neither of the participants included in this group prioritised economic criteria over environmental criteria. Within the economic criteria they weighted higher those focusing on dispersion of tourists or balanced visitor rates. The following figures (Figure 4-10) show the weighted scores and the weighting of this perspective.

Figure 4-10: The weighted scores and the weighting of first alternative perspective





Second Alternative Perspective

Three participants (Association of municipalities, one municipality which does not belong to this association, and a forest owners' co-operative) were included in this second group. This group comprises participants with strong beliefs about private enterprise and development of tourism services in the close proximity of the national park. Those participants tended to see investment by individual entrepreneurs as a vital component of regional development. In this view, nature protection is recognised to be important but it is not the priority.

They felt that nature protection should only be significant in the core zone of the national park while tourism development should be allowed in the buffer zone. All of them had a very negative view of the Pan Park idea embraced in scenario 3. *The Association of municipalities* participant considered scenario 3 an ‘anti-development scenario’ saying that:

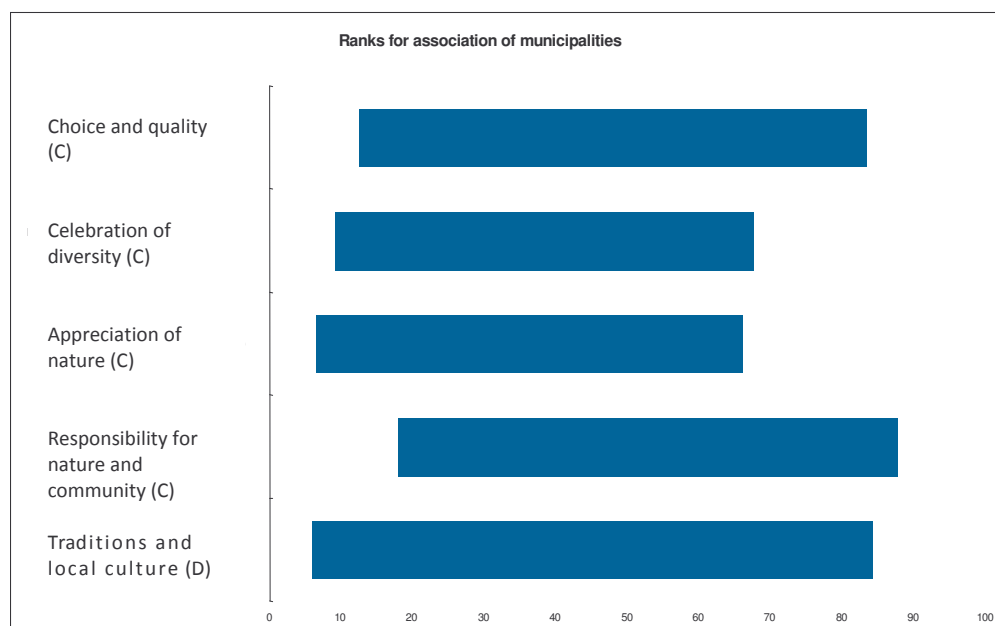
“In Pan Parks tourist services will be limited.”

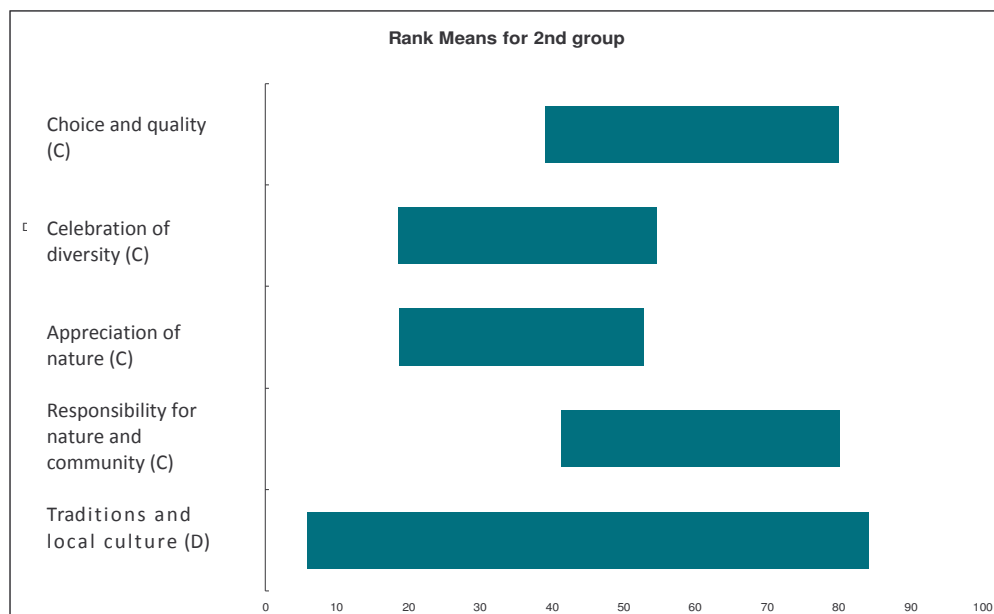
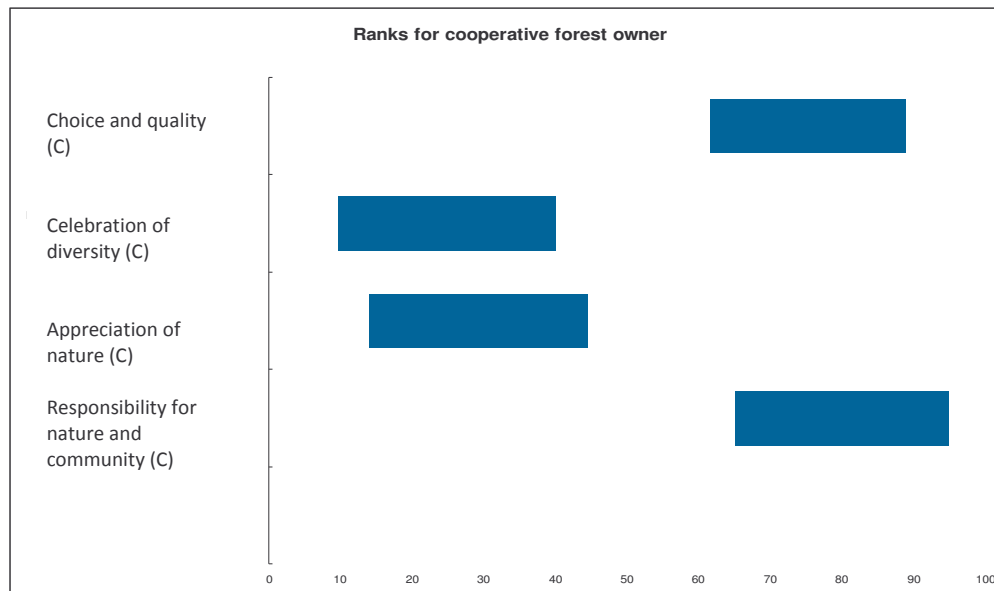
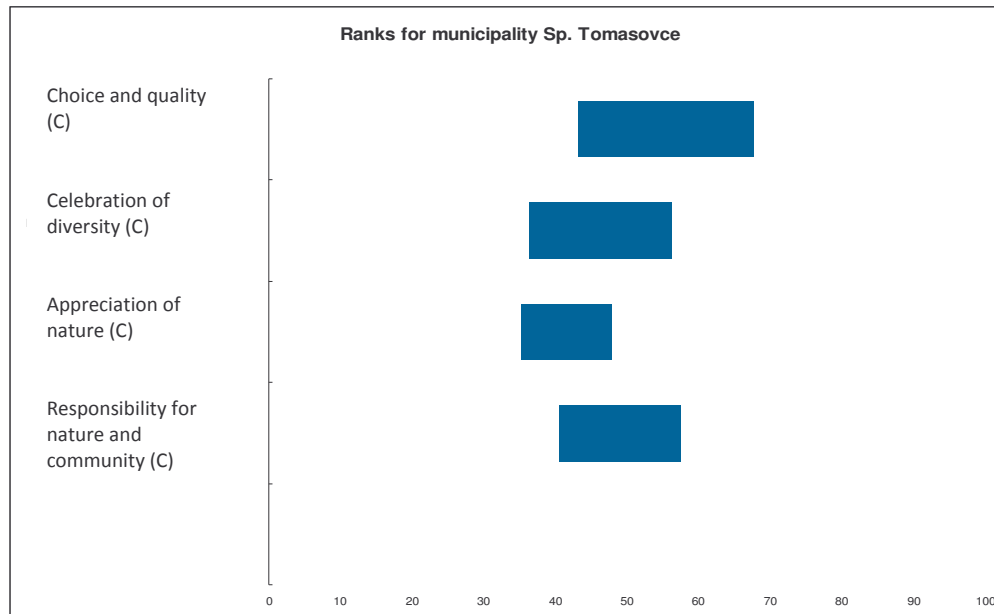
The association of municipalities participants also pointed out:

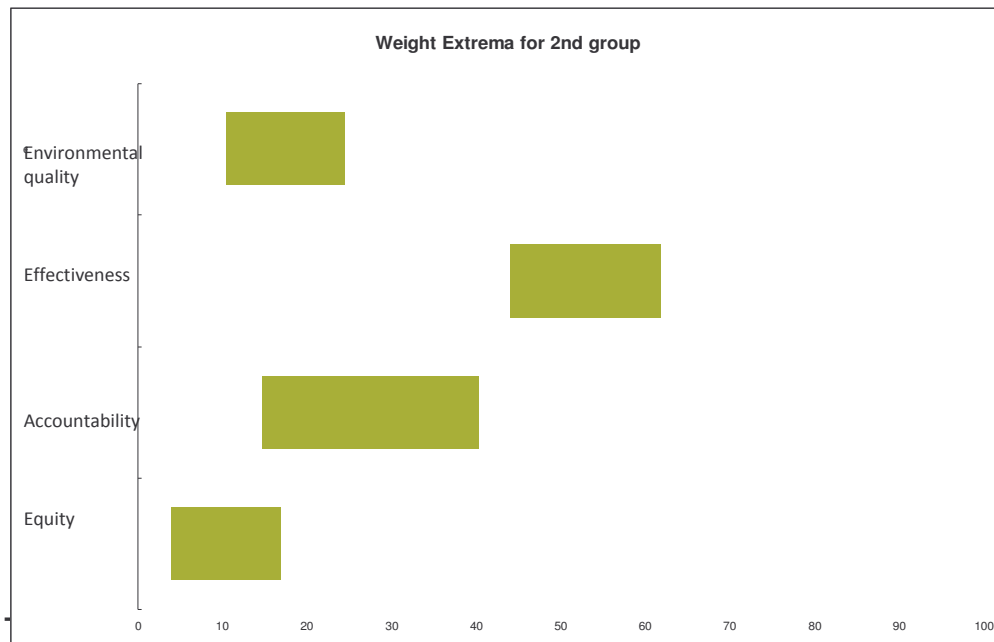
“Pan Parks want to decrease the amount of tourist services offered.”

In this view, economic criteria such as economic benefits or employment were highly preferred. The weighted scores and weighting for this group are shown in Figure 4-11. Compared to the above group, they are in strong opposition, with the one (first alternative perspective) preferring nature protection to economic benefits and the other one (second alternative perspective) supporting economic benefits and individual tourism development. Although in both groups equity criteria received low weighting, in this group it was visibly the very least important issue. Scenario 3 “Appreciation of nature” performed relatively poorly in both the aggregate and individual pictures. The best weighted scores were given to the scenarios “Choice and quality” and “Responsibility for nature and community”.

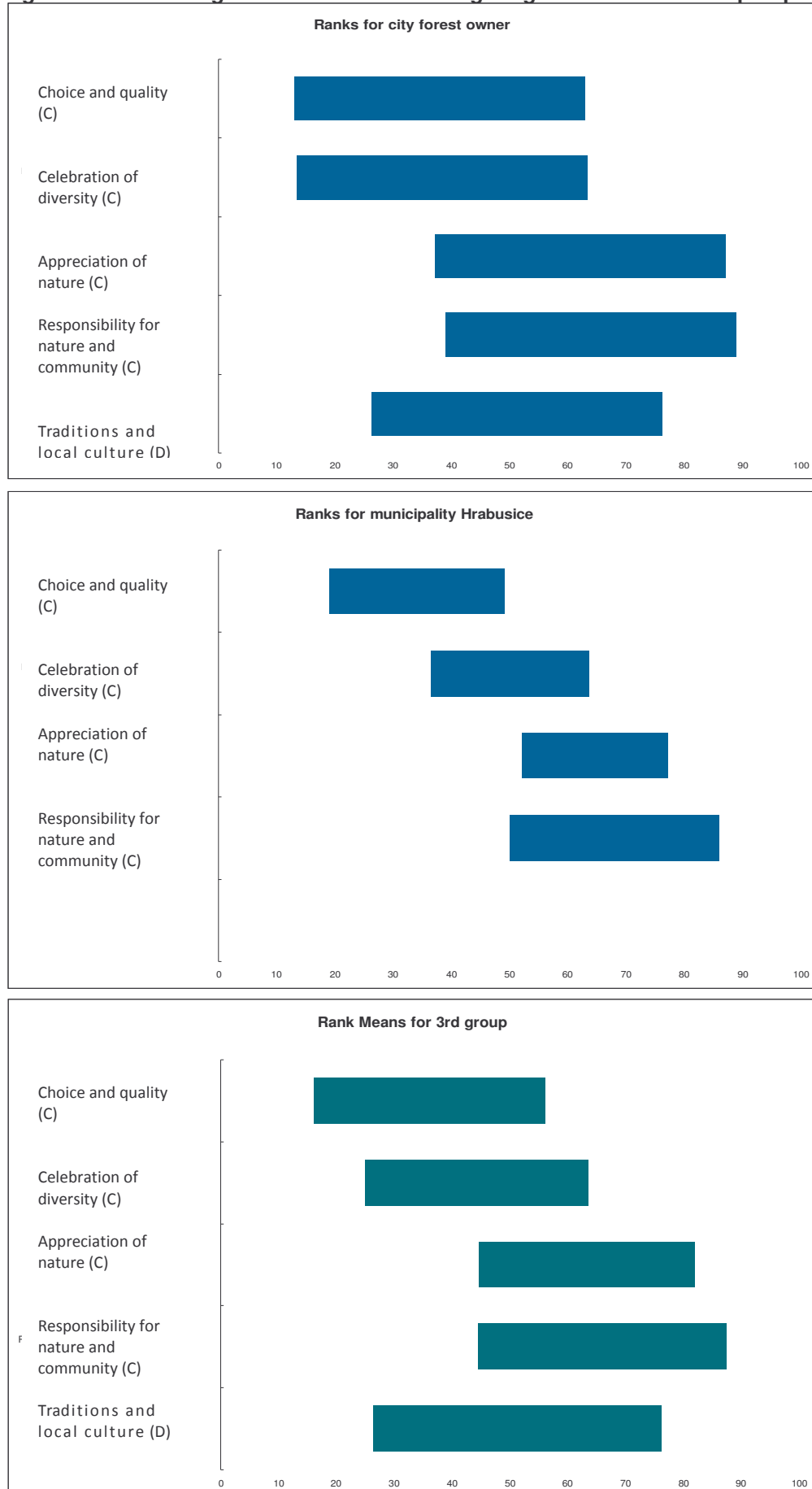
Figure 4-11: The weighted scores and the weighting of second alternative perspective

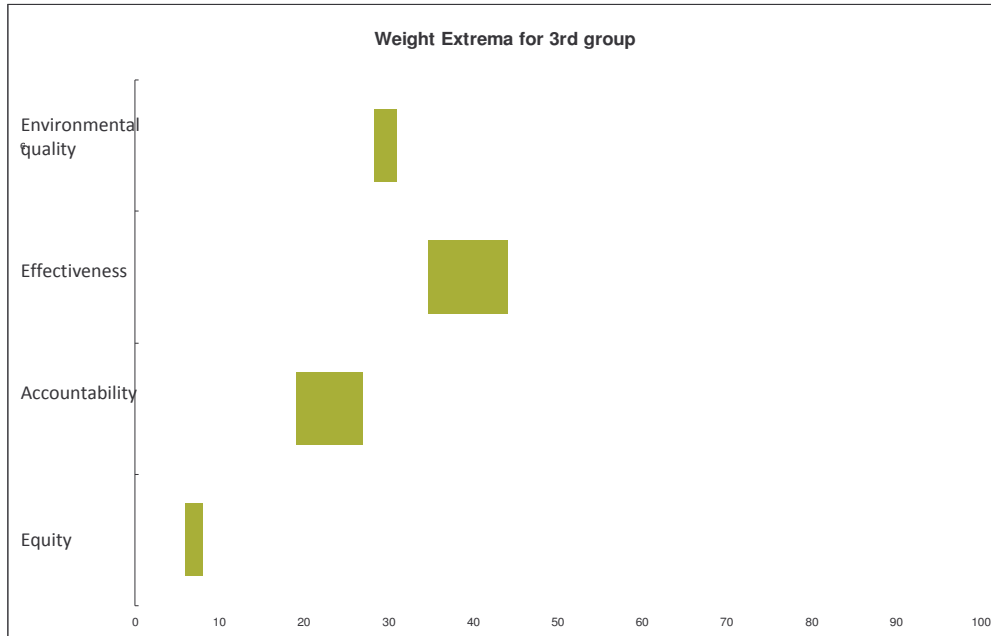






The third alternative grouping of participants focuses mostly on the co-operation and communication aspects of the scenarios. This group comprises the *Landowner* and one *Municipality*. These participants tended to see partnership organizations as the solution to most of their conflicts and the multi-ownership structure of the national park. The Municipality (Hrabusice) participant, for example, argued that co-operation is very important for almost all criteria like 'Access to information/Availability of information', 'Visitor safety', 'Collective decision-making' etc. Although economic criteria are weighted highly, they have a more 'long-term and effective character'. For example, the return of investment back to the region or the employment rate. Compared to two preceding groups, the third group weighted environmental criteria as the second highest. The weighted scores and weighting for this group are shown in Figure 4-12. In the overall ranking as well as in the ranking of each participant in this group the "Appreciation of nature" and "Responsibility for nature and community" scenarios performed the best.

Figure 4-12: The weighted scores and the weighting of third alternative perspective



The remaining two participants were not included in any of the previously described groups. The first one is the representative of Entrepreneurs (Figure 4-7). Although he ranked the “Appreciation of nature” scenario as the best one and the scenario “Choice and quality” as the second best, we could not include him in any of the alternative groupings due to the great diversity in his expressions of the modes of underlying reasoning. The ranking of the other remaining participant (municipality Smizany, Figure 4-7) differed completely from all the other participants. In his view, the scenario “Celebration of diversity” performed relatively well compared to the other options, which received almost the same weighted scores. Moreover, this participant weighted relatively strongly the equity criteria compared to the rest of the actors.

4.5.9 Emerging Issues in the Appraisal of Futures of the Tourism Development: Institutional, Governance and Policy Perspective

In general, natural scenery of landscape was clearly considered to be the most significant issue, which unified the participants in their appraisal. This factor was the one that almost all actors believed to be most important for the future development of the area and thus gave similar assessment of the scenarios in respect to this issue. On the other hand, there were also various conflicting areas explaining the disagreement on the scenario performance among

participants with different perspectives. Attitudes towards the three key factors strongly affected the appraisals of the scenarios and thus the possible future relationships and co-operation within the community of the Slovenský Raj National Park area. In general there is a clear disagreement on the degree to which different actors should be involved in the governance of the area (collective-decision making), how the rules and other types of institutions should be implemented (system of regulation and control) and which policy goals will enhance the sustainability of the area (sustainability). This section explores these three main issues affecting the overall performance of the scenarios.

Collective Decision-making

The decision-making and governance structure is one of the issues creating the conflicting environment in the national park area. The present ownership structure in the Slovenský Raj National Park is diverse, with almost 50% held in either private or community hands. The park territory is under the power of numerous mainly hierarchical authorities and divided among multiple administrative units. The general territorial competencies presiding over the park are shared by 15 municipalities and two regional governments; the specific competencies are held by several state organisations, such as the water management, fire and forest authorities. Such multiple decision-making structures without proper governance rules have a significant effect on the co-ordination of responsibilities, resulting in various conflicting responses to forest fires, resource overuse, illegal activities in the park or the ignoring of several legal provisions (Kľuvánková-Oravská and Chobotová, 2006). Although thanks to new EU legislation the decision-making competencies have shifted to a lower level of governance, the multiple-actor situation makes decision-making even more complicated and sometimes less transparent.

The interviews exposed some willingness to implement joint management and funding or multilevel governance already in the past. However, no major development has occurred and no successful multi-level actor's co-operation has been achieved in the SRNAP so far.

According to several participants, activities surrounding Pan Parks (in scenario 3) could offer such a space for co-operation and especially for the development

of rules for co-operation in nature protection and tourism and for collective decision-making.

“The Pan Park logo might not only attract tourists but the criteria and rules controlled by the Pan Park organization would guarantee transparent and fair co-operation.”

Other participants presented scenario 4 and the increasing role of association Microregion SRNAP as an example of multilevel governance that include both governmental and non-governmental actors. Such association can provide new opportunities for local politicians and private actors to influence and share responsibility for sustainable rural development. The park administration is also a member and can interact with non-state actors and be better informed about the activities planned within the national park. This assures at least informal cooperation in the decision-making process and biodiversity governance.

The potential benefits of collective decision-making and co-operation were seen as an important base in order to achieve a robust and sustainable future of the tourism development in the area.

“One municipality will not make a big thing.”

“Our entrepreneurs are finally working together, they know that it is not possible to do things individually.”

Other participants did not talk about broader benefits of a multilevel co-operation structure, although they did see some advantages of co-operation in terms of availability of information, visitors' safety or visitor rates. As was argued by several actors:

Availability of the Information

“If an entrepreneur wants to spread information about his business, he should be included in some network of information agencies.”

“If an association made a web site, it should cover the whole park, but an individual actor cannot manage that.”

Visitors' Safety

“If you manage the tourist paths collectively, the safety of visitors is better.”

Visitor Rates

“If we are not going to co-operate in managing tourists, they will not stay here for a long period. I think the only possible way is via co-operation.”

Despite the evidence of enhanced cooperation between local policy actors it is not easy to establish new relationship between community and the state. NGOs especially those operating at the local level and presenting ‘radical’ views, tend to remind outsiders with fewer opportunities to influence agenda or policy outcomes. They are often perceived by local government and private actors as ‘orthodox’ and are not involved in consultations or in real decision making

Another problematic issue in relation to the decision-making structure was the role of private sector. There were few participants who had negative views of the common management of the national park and prevailing role of the state, especially the Park Administration. Several participants stated that individual and private actors should enhance their influence over local development and thus improve the management of the area. New form of governance should change the policy planning from traditional top-down approach towards more giving more freedom and flexibility to private actors. They declared that private actors can enhance sustainable use of natural resources and improve the quality of tourist services and increase employment in the region.

As was highlighted by several participants the active engagement of local civil society combined with commitment and leadership by local and national government can promote sustainable development.

System of Regulation and Control

The second set of issues influencing the controversial debate about the development of the area related to the debate over the institutional settings of regulatory rules. The issues of clearly established rules, rights and principles was an important factor distinguishing participants’ appraisals.

Several participants (Park Administration, NGO and several municipality participants) saw the importance of establishing rules and a system of control for the over-exploitation and short-term opportunistic behaviour and the overuse or unregulated management of natural resources and biodiversity values. The

strict principles and mainly state-imposed regulations were supported by the Park Administration participant:

“The rules are contradicting because of conflicting interests of different groups, but this contradiction can be overcome by state law. The other day I read in an article that in the Czech Act on Nature Protection there is a paragraph that the act is ‘lex specialis’, meaning that in case there is a conflict between nature protection and for example energy or transport law, the nature protection has a priority. In our act there is something similar but it has no value - it is just a kind of preamble. The constitution should guarantee nature protection, the state regulation should be the most important.”

The Association of municipalities and one Municipality participant broadly agreed with the arguments in favour of establishing rules but felt that setting up self-organized systems of participation and control was more effective. These participants highlighted mechanisms other than authority, bureaucratic rules, standardization, or legal resources. They felt that self-organized mechanisms and rules created in a bottom-up manner could enhance the co-operative behaviour and at the same time enable local actors to organise collective arrangements. As the association of municipalities participant emphasized the importance of a conflict resolution mechanism for increasing co-operation:

“The best way to resolve conflicts and problems is to sit together at least once per month and discuss it; as we all know each other it’s easy to see if somebody has done something against our principles, thus co-operation is easier and the problems can be solved faster without the necessity to sue anybody at court, for example.”

Other participants (entrepreneur and association of municipalities) did not talk about the benefits of the rules, but their main attention was focused on the limits and constraints of strict rules. *The association of municipalities* participant was sceptical of the rules in scenario 3:

“I think that the rules in Pan Park would limit all our efforts to improve the economic situation of the region, and we will not be able to make any tourism business; the Act on Nature Protection already limits lots of activities so why do we have to create new restrictions???”

The entrepreneurs argued that the scenario must be economically attractive to everybody and that rights are more important than rules:

“Everybody is only talking about what we cannot do here and there but once and for good I would like to know what my rights are. I want the administration to clearly set the boundaries for nature protection and where tourism development is possible, because without knowing that, every day they will try to prohibit some other economic activity and we will never move from the current economic situation.”

The possibility to enable local actors to organise collective arrangements based on self-organized systems of transparent participation and control can discourage participants from yielding to incentives for short-term opportunistic behaviour (Goodwin, 1998; Jones et al., 1997).

Sustainability

In assessing the scenarios, the most important issue to some participants was not to compare different scenarios for the park area but to know the actual possibilities of promoting sustainability in given institutional and governance structure. The question for these participants was more to do with the issue of allowing local actors some freedom to choose the ways in which they realize objectives of sustainability. However we saw diversified ideas and views how to implement sustainability objectives. Some participants argued that policy goals of the area of the SRNAP and other Slovak protected area should focus not purely on nature protection. They saw the tourism development as one of the possibilities for the area to cover social, economic and also environmental aspect of sustainability; others however highlighted the greater importance of institutions for nature protection as a way to guarantee sustainability of the development of the area.

The nature protection and tourism are still understood as completely different policy objectives. As one participant argued:

“I do not think there’s so much difference among those scenarios, I think it does not matter if you are doing things individually or collectively, I can see only two choices for sustainability, two goals: either nature protection or tourism development.”

Several participants thus felt that it is not possible to create synergy between nature protection and development of tourism in order to achieve a sustainable development. The municipality participant felt:

“If we want to have some profit, we have to choose the way of the business and utilize the natural resources and landscape characteristics that our environment can offer us.”

But if we choose this way, we have to exclude nature protection and tourist safety because business and ethics cannot go hand in hand."

Other participants did not agree with the contradictoriness of nature conservation and tourism development. To the contrary, they saw tourism and nature protection as mutually beneficial. Literature on new tourism trends also sees the protection of natural areas as a direct spillover effect of tourism, where the existence of protected areas in the region may enhance rural tourism, and rural tourism may, in turn, produce positive economic, social and environmental benefits within the protected area and the region (Mathieson and Wall, 1982; Kurczewsky, 2001; Briedenhann and Wickens, 2002; Huybers and Benett, 2002). One municipality participant agreed with these arguments and the potential benefits of tourism were seen as coming from nature protection and sustainable use of the natural resources:

"We cannot guarantee return on investment without protection and sustainable use of natural resources."

The national parks thus must be seen as an asset forming part of living rural areas - sustainable in social, economic and environmental terms (DEFRA, 2002).

4.5.10 Engagement in the Process

Although in general most of the participants were happy with the whole multi-criteria mapping procedure, some of them had reservations about some aspects of the process, especially with the multi-criteria mapping exercise. Some took issue with the technical nature of the multi-criteria mapping exercise or with a lack of proposed data and information for scenario assessment and thus lack of empathy with the approach. Moreover, due to the time-consuming nature of the process, it was obvious in some cases that the stakeholders did not feel entirely comfortable fully engaging in each step of the process. Two participants (two municipalities) found it difficult and unpractical to assign quantitative values to the scoring and thus sometimes created their own qualitative representation of quantitative values. In addition, one participant (a landowner), apart from difficulties with the quantitative approach to scoring and weighting, felt uncomfortable using the computer and thus it was necessary to use a simpler technique in order to obtain his scoring and ordering criteria.

Although some participants felt that the results of the process would have only little impact on the policy makers, most of them expressed that the communication and analyses of the future possible scenarios can help them better understand the problems of the area and its complexity.

4.6 Conclusions: Comparison of Different Options

The results of the participatory multi-criteria mapping process shows the need for improving current tourism trends in the area of the Slovenský Raj National park, supported by general acceptance that the preservation of natural scenery in proposed scenarios is more important for sustainable tourism development of the area than their social or economic benefits. The scenario 3 'Appreciation of nature' was seen as the most robust scenario with respect to unpredictable cumulative disturbances, mostly due to its performance of co-operation and collective decision-making. Moreover, this scenario was one of the least uncertain ones due to the strict rules and guarantee of an international organization. However, compared to the other scenarios, 'Appreciation of nature' was characterized by a high degree of ambiguity due to lack of information and negative and contradictory opinions of some actors on the Park Administration, which supported this scenario. The "Responsibility for nature and community" (scenario 4) also performed very well. The uncertainty of this scenario is even lower than in scenario 3, partly because participants themselves had developed this scenario at the participatory workshop and thus they were most familiar with it. Compared to scenario 3, the ambiguity is lower due to the willingness to achieve consensus among several actors and bottom-up co-operation. The "Celebration of diversity" (scenario 2) did poorly, partly because of some of the participants' concern about its capacity to resolve the current issues and little influence on robustness criteria. However, it is important to state that almost all participants shared similar views of this scenario. Given the initial comments on the scenario "Choice and quality" (scenario 1), its high performance was surprising. A few actors expressed the opinion that private entrepreneurs can use the natural resources better and more efficiently and that because the national park is protected by law, there is no chance of changing the natural state of the landscape. However, the strong ambiguity highlights contradicting views towards this scenario. Finally,

the “Traditions and local culture” (scenario 5) did not perform very well and with quite a high degree of uncertainty mostly due to its broader area and thus increased numbers of possible actors who should co-operate and communicate. In general, the analysis of the appraisal results leads to the following key conclusions: Although it was highlighted that there is a complex and heterogeneous interest and value conflict concerning future development strategies, the natural landscape scenery was the most important factor of robustness for all actors with respect to the sustainability future of the Slovenský Raj National Park. This knowledge can serve as a starting point for actors to open the discussion and co-operation. There were significant uncertainties concerning international investors, state support, and the numbers of participants in decision-making. As was highlighted by several participants private international actors involved in decision making may not necessarily be connected with the commitment to promote sustainable development. The number of participants in the decision making was particularly questioned by the role of environmental NGOs. The state institutional support and priorities are important drivers for sustainable development for majority of participants. On the base of this findings it can be understand that for successful sustainable development of the area there is a need for cooperation of local actors based on trust, partnership and bottom-up participation combined with the role of traditional top-down institutions and state support in the promotion of sustainable development. However, the role of the rules such as monitoring, control or information management, active involvement and cooperation of public and private actors in decision making and the importance of the national park and nature protection as an asset for sustainability call for future attention.

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4.7 Critical Reflection of the Process

This chapter highlights some critical reflections on the nature of the participatory mapping process and its findings. Firstly, the aim of this research was to identify, develop and compare alternative ways of sustainable tourism development for the robust system of the Slovenský Raj National Park. The reason for developing scenarios instead of providing simple options as has been done in most MC exercises, was to engage local actors in the research

team in order to help the actors better understand the complex issues in the area. The development of the scenarios in a participatory manner can identify gaps, inconsistencies, dilemmas, and uncertainties and help to understand the complexity of possible futures. However, to focus on the full story lines of the scenarios in scenario appraisal might complicate the process. Moreover, some features of one scenario might be similar to some in another scenario. In some cases, anyway, participants focused on only one aspect of the scenario without trying to understand the linkages among the actors and factors of the scenario. In this sense, the assessment of simple options would simplify the process because it would avoid questions over similarities in some scenarios.

One of the most important aspects of multi-criteria mapping is the perception and treatment of uncertainties. The treatment of uncertainty is the feature that makes MCM the most different from any other multi-criteria method. Both technical and scientific uncertainty in the MCM method are highlighted by paying specific attention to the optimistic and pessimistic assumptions in scenario assessment. Providing two types of score captures the degree of uncertainty and variability around the performance of a particular scenario under a given criterion. Moreover, the approach where ranks lie within ranges of values refers to the role of incomplete knowledge and unreliability of different data and context-specific dependencies. This mechanism thus can justify the existence of large differences in available studies and literature. However, in the practice of other MCM exercises (Stirling and Mayer, 1999) and also of this research, the pessimistic and optimistic approaches to the scoring do not, in general, affect the performance picture of the scenarios compared to the differences between perspectives. In addition, most of the actors who participated in this study used similar ranges of values for assessing the scenarios and did not distinguish between the uncertainties in the particular scenarios.

Finally, the issue of the existence of trade-offs produces another weak point in this method. The term trade-off refers to the possibility of offsetting a disadvantage of some criteria by a sufficiently large advantage of another criterion (Munda, 2008). The weighting of criteria in MCM cannot be considered

in an isolated abstract sense. It is not understood as an importance coefficient, where comparing how much more important one criterion is than another does not take into account that the increased amount of the less-valued criterion can compensate for the loss related to the higher-valued one (Vatn, 2006). On the contrary, in MCM it is linked to particular scores. For example, the relative importance of biodiversity loss cannot be compared to that of the unemployment rate unless it is specified how much loss and how much unemployment is involved. This refers to the concept of weak sustainability, where certain losses in the environment can be compensated or substituted for by physical capital.

5. Conclusions

5.1 Barriers and Driving Forces

The aim of the research was to investigate the process of institution building and its effect on sustainable rural development. The main research question concerned the types of institutions which act as driving forces behind and barriers to sustainable rural development (especially rural tourism) in and around the area of the Slovenský Raj National Park.

The major challenges for this research arise from complexity of the transition process and sustainable development especially but not exclusively in protected areas of Central and Eastern European countries and calls for an integrated and co-evolutionary approach going far beyond the style of research in one's own discipline and perspectives. Such research involves not only using knowledge from different disciplines and time scales; rather, the representatives of various disciplines are all involved in defining the problem, work to become familiar with the concepts and tools used in the other disciplines, discuss methodological choices across disciplines and scales, take on board results and their interactions from the other disciplines, and are all involved in presenting and interpreting the results (Common, Stagl 2005; Munda 2004; Rammel et al., 2007).

To achieve interdisciplinary and co-evolutionary understanding of complex systems, especially the rural area subject to this study, we followed this line of argument using a different time perspectives with the combination of various methodological tools and theoretical approaches. Different time scales for understanding of the past, analysing ongoing processes and exploring future options have been employed in order to understand the process of institutional building and explore all possible driving forces and barriers to sustainable rural development. Empirical evidence was gathered from 70 actors in the fields of tourism, nature protection and public administration by means of in-depth interviews, observation and two workshops. Moreover, we used secondary data from various documents, such as regional statistics, regulations and statutes of associations and co-operatives. The institutional approach has been particularly useful in this research. However our focus was not solely on institutions (rules

and norms), but rather on the complex institutional interactions, relationships, networks and processes that can affect sustainable development.

The transition process of the last 20 years has created a complex institutional setting for nature protection and sustainable development in national parks in Slovakia. The transition process has offered some opportunities and triggered changes but also created institutional barriers for sustainable development. Within the transition process institutional change and institutional building is viewed as the interaction between former norms and new legal rules. It is this interaction that can influence sustainable development, both positively and negatively. Moreover such interaction can influence the durability and stability of newly imposed institutions.

To explore this process we looked into the change of formal institutional settings (mostly property rights) during a transition process in the area of the Slovenský Raj National Park, the gradual evolution of new rules and interaction with pre-existing and changing habits, attributes of the community and physical conditions of the area. The instant implementation of formal institutions is likely to be unsuccessful, because they are brought into different institutional settings. In the SRNAP, the emergence of new private organizations and the imposition of their corresponding institutions were affected by previous institutional settings. The interaction of former informal rules (slow moving institutions) and habits which prevail from the communist period with newly imposed institutions created conflicts. Thus most of those organizations did not work effectively and either have vanished or transformed to completely new ones with new evolving formalized rules. Moreover, the instant implementation of western institutions was affected by different biophysical conditions and the attributes of local communities. It provides a general rationale why reforms in any given area must be built on the local conditions. Ignoring these factors in designing institutional reforms is likely to be a recipe for failure (Roloand, 2008).

The second and the key related issue is the possibility of newly imposed institutions having a reconstructive effect on the preferences of individual actors through the process of habituation and the degree to which the evolution of institutions and their durability may depend on the formation of habits. Focusing on the transition process, we can argue that changing norms and rules of sustainability require adequate learning process embeddings or habituation of

newly established institutions. The ex-post analysis showed that the interaction of informal slow moving institutions with newly imposed legal rules is not one-sided: informal rules and habits exercise causal pressures on legal rules, and, by the same token the latter can influence the path of informal rules and habits. Although the institutional changes in the tourism sector in the SRNAP are slowly evolving towards new stable and durable institutions, they still lack a flexible approach which enables to pursue the sustainable development of the area. In the area of the Park, the economic and political transition process was followed by an increased tourism inflow to the national park and consequent slow environmental changes (which are not visible immediately), without adequate institutional strategies for adaptation and sustainability. The importance of robustness as an adaptive capacity to cope with those disturbances and its corresponding institutions was highlighted. Without flexible and diversified institutions the ability of the system to recognize and buffer the negative influences of cumulative long-term disturbances may be reduced. The flexible institutions for more transparent decisions (such as regular monitoring and reporting), better information management and rules for co-operation are critical to ensuring accountability and thus make the system more robust in the face of disturbances. Moreover, the rules for participation and cooperation can not only improve accountability among actors but also bring procedural equity to the decision-making process. Various co-operative activities and consultations organised by the Park Administration or the municipalities in the area of the SRNAP are helping to understand the actors' problems and enhancing mutual learning. The rules for equitable decisions and co-operation can make the system better-prepared and vigilant towards disturbances and their consequences. An increased diversity of the tourist activities supported by general potentially overlapping high level rules (the nature protection act, zoning system) and more specific low level rules (visitor management plan) can help buffer the negative effect of the increasing numbers of tourists by dispersing and reducing their influence on sensitive areas. The wide range of activities, means of communication, and flexible and diversified formal and informal institutions can enhance the mechanisms that maintain the ability of the system to adapt to changing environments. The institutional diversity has been

suggested by many scholars as part of the solution for adaptive governance (Adger et al., 2003; Ostrom, 2005; Paavola, 2007)

In our research it was also highlighted that there is a complex and heterogeneous interest and value conflict concerning future development strategies and some of actors are interested in short-term benefits and efficiency, an orientation which tends to decrease sustainable future of the Slovenský Raj National Park. Although, we found the evidence of the emergence of bottom-up institutions for cooperation, but actors involved may not necessarily be connected with the commitment to promote sustainable development. Such attitude can be found within many local communities living on the edge of national parks anywhere in Europe. They often perceive nature conservation as a heavy constraint on their prospects for economic development (Hovik, 2008). Despite the increasing role of local actors it is not easy to establish new relationship with all actors in the area of the SRNAP. Especially local NGOs remain on the fringes, with limited opportunities to influence decision-making and sustainable development. However it is possible to say that emergence of bottom-up institutions enhancing cooperation between the private and public sector, provide new opportunities to influence policy and representing new efforts to take shared responsibilities for sustainable development, as was documented by several actors from SRNAP. As pointed by Kooiman (1993) no single actor, public or private, has all knowledge and information required to solve complex, dynamic and diversified problems of sustainability. However, through cooperation and participation they might learn about consequences of their own activity as well as about their dependency on sustainable development (Hovik, 2008). The role of partnership in achieving sustainable development is increasing especially within protected areas, as documented by Thompson (2005) in her research about the governance of England's national parks.

Despite the fact that the bottom-up institutions for cooperation and collective decision making may play a certain role for sustainable development, the findings reminded us that of the need to take into account of the role of traditional top-down institutions and state support in the promotion of sustainable development. The state institutional support and priorities are key drivers for sustainable development, and although local actors may pursue

cooperation without full central government support, the sustainable development is enhanced when this traditional state support is present. Major role for the state remain and continue to be evident everywhere in enlarged Europe (Jordan, 1997; Bache and Flinders, 2004; Bache, 2008), including the need to promote political objectives for sustainable development (Pierre, 2000; Baker and Eckerberg, 2008); especially in protected areas (Thompson, 2005; Hovik, 2008; Fairbrass and Jordan, 2004).

In conclusion, we argue that the findings presented clearly demonstrate that both bottom-up and top down institutions together can promote sustainable development. The combination requires the active engagement of local actors combined with the support of national governmental authorities.

In order to understand the driving forces behind and barriers to the sustainable rural development within the area of the Slovenský Raj National Park, this thesis showed that variables related to past slowly changing informal institutions and habits, ongoing rigid and inflexible institutions are the most significant barriers, whereas emerging bottom up and diversified institutions for co-operative decision-making and co-operation with state legislation and regulatory support are vital driving forces for sustainable rural development.

The findings of this thesis enable the making of general (albeit not necessarily universal), comparable, and transferable observations about the problem of institutional building and its effect on sustainability of rural areas, and more specifically within National parks or other types of protected areas.

5.2 Policy Implications

The transition process from a command-and-control economy to a market economy revealed the issue of the stark differences between the rural and urban areas. The difference in development thus poses considerable challenge to EU policymaking. In economically unsuccessful areas the absence of interest/investments, underdeveloped special and professional knowledge of the rural population in general as well as weakly developed infrastructures, have increased the negative influences of the development of rural areas. The sustainable development of rural areas refers to the economic development for the benefit of rural communities based on sustainable use of natural resources

on which such development depends. In the CEE countries the consequent increase in economic and social conflicts has also created environmental problems and overexploitation of natural resources that affect the sustainability of the rural areas in the long run. The nexus, nature protection and development is, of course by no means unique to CEE countries. To combine nature protection and economic development based on the use of natural resources is a challenge to sustainable rural development also in the rest of EU areas that face a decline in economic activity and population.

To choose the correct path for sustainable development it is not enough to focus on changing of the CEE political and economic systems. Such policies are sentenced to failure if local conditions and prevailing institutional arrangements are not taken into account. Special attention in transition process has to be paid to the development towards new governance, understood as the emergence of new patterns of relationship between different level of government as well as policy sectors and between public and private actors that enhance bottom-up co-operation and active involvement of local actors in promoting nature protection and sustainable development. State government needs to support this local ambition by combining the use of funding and sponsoring policy instruments with the use of traditional policy instruments such as legislation and regulation of activities especially in national parks or other types of protected areas. The policy for the sustainable rural development must combine the use of natural resources for the economic benefit of the local communities with nature conservation. The problems associated with institutional building and sustainable development call for future attention.

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Appendix:

Appendix 1: Full Versions of Scenarios

Scenario 1 “Choice and quality”

In this scenario, there is an increased demand for quality and all-inclusive tourist services concentrated within short distances without the necessity to use any kind of transport after arrival in the park. To provide those comprehensive and high-standard services and thus to satisfy the tourists, the development is fully focused on the utilization of all the natural and landscape characteristics for the building and offering of new high-quality tourist services and facilities inside the Slovenský Raj National Park and a few surrounding municipalities. There is a rapid growth in the number of large tourism businesses and there is an increasing openness to international investment. This situation accentuates co-ordination of the tourist activities in the park area and at the same time enhances pressure on the surrounding wildlife.

The development of the area in the close proximity of the park is helped significantly by big private investment from outside the region; the state provides no financial support to tourism and nature protection. Due to the attractiveness of the area, projects for creating new tourist attractions (such as a ski resort or sports and wellness centre) are realized. This trend can lead to the improvement in the economic situation of some stakeholders, especially big hoteliers or operators of tourist attractions, and land owners (municipalities or private owners), whose parcels are in a close proximity of the park. On the other hand, it can be highly competitive especially for small entrepreneurs and municipalities situated farther from the park. All these factors result in the creation of new jobs in the area mostly for unskilled labour, increased profits for solvent investors and limelight for the area.

The state does not accomplish a legislative declaration of the zoning system in order to create an unfragmented core zone of at least 10,000 hectares where no extractive use¹³ is permitted and where the only management interventions are those aimed at maintaining or restoring natural ecological processes. The state does not offer the possibility to exchange land in the proposed core zone for land outside the park, and does not authorize funds for compensations for landowners to move from the 3rd or 4th protection levels of their land to the 5th level of protection. Landowners tend not to agree to integrating their land into the core zone.

Local stakeholders (entrepreneurs and municipalities) are individualistic and fragmented, mainly concerned with the short-term benefits. There is a lack of co-operation and trust among local stakeholders. The municipalities do not get involved in creating associations but try to succeed as individual entities on the basis of their property or location close to the park. Entrepreneurs create several

¹³ The following human activities are not accepted in the core/wilderness zone: hunting / culling, mining, logging, grazing, grass cutting, road and building construction, large-scale cultural and sports events, etc. These activities are not accepted even if they are based on traditional use.

associations each of which aims to promote tourism in the park area. As a consequence, the situation is characterised by high competition among local tourism associations of entrepreneurs and new emerging conflicts. The beneficiaries are mostly the entrepreneurs who provide high-standard tourist accommodation and services. The Park Administration becomes less powerful in relation to its ability to prohibit economic development and it is not involved in any educational activities.

The number of tourist services and facilities increases. New tourist resorts, centres and hotels are built; new hiking, cycle and cross-country paths are opened. Some previously closed areas are reopened for tourists in order to offer them more localities for extreme sports. The development is focused on the improvement in the quantity and heterogeneity of tourist services. Visitors have top-adrenaline experience and enjoy a wide range of activities (sports and entertainment) available to them. This is supported by offering some extreme sports (rafting, climbing, ice-climbing, bungee jumping, paragliding, sightseeing flights, etc.) and leisure activities (wellness, beauty treatment, etc.) directly inside or in the close proximity of the park, which increases the tourists' satisfaction and numbers. However, some types of tourists, who prefer sustainable and nature-based tourism, no longer come to the park because of the reduced opportunities for wilderness experience. Due to the increased pressure on land use, changes in the scenery and the human intervention with the natural environment endanger the sensitive areas of the NP.

Scenario development		
Links between entities	Entities in the park area	
Processes and Actors (including their roles)		
External forces on social actors	Major changes in policy, demand for tourist services: increased demand for quality and all-inclusive tourist services	
External forces on resources and infrastructures	Type of development: (construction of new roads, new infrastructures): Development is based on tourism, new ski slopes, new tourist resorts, centres and hotels	
Link between resource users and public infrastructures (impact of rules (SC), type of development (PC) on users)	Benefiting, employment: the creation of new jobs mostly for unskilled labour, increased profits for solvent investors and limelight for the area	
	Public infrastructure providers	The state (its financial and legislative role): the state provides no financial support to tourism and nature protection, it has not accomplished legislative declaration of zoning system
		Associations of municipalities (Type of organizations, informal/commercial based): no associations formed
		Park Administration (involvement in associations, in education etc.): administration of the park do not interfere with tourism or education activities
Link between public infrastructure providers and public infrastructures	Funding and its flow, building infrastructure=over/under capitalization , maintenance, monitoring, enforcing: foreign/outside sources, partly returned for new investments	
Link between users and public infrastructure providers	Co-operation, participation: Co-operation and trust between stakeholders is not improving	
	Resource users	Type of investors (big/small, foreign/local, specialization): big, focused on large tourism business, from outside the region
		Landowners (their willingness to exchange their land): landowners have not agreed to integrate they land into core zone
		Entrepreneurs (type of, what services they offer): high-standard tourist accommodation and services provided
		Tourists (type of tourists, what activities they prefer, and length of their stay): increasing numbers of tourists demanding high-standard and all-inclusive services, experience based on sports and entertainment, decreasing numbers of tourists preferring sustainable and nature-based tourism
	Public infrastructures:	Social capital
		Physical capital
	New strategies & rules (Compensations, <i>Zoning system</i> , <i>new law, acts</i>): no zoning system, no compensations, no new law or acts	
	Engineered works (paths, etc.): new hiking, cycle and cross-country paths, no new side-steps or ladders	
	Resources	Forest, National Park, and surrounding area (state of the environment): increased pressure on land use, changing scenery
Link between public infrastructures and resources	PC: Impact of development on the area (short distance, long distance): limited to short distance from the park SC close areas, reopen areas: some areas are reopened	

Scenario 2 “Celebration of diversity”

Employment is the driving force in this scenario. In order to improve the economic and social conditions and reduce the unemployment in the local communities, socio-economic development is a major concern. People value nature protection in this scenario but it is not the priority. Thus development of the Slovenský Raj National Park (NP) and the surrounding municipalities is focused on diversifying economic and social activities, which means different types of light industry and services (workshops on IT technologies, offices for architects, etc.), and different types of tourism (educational, sports activities, rural tourism, etc.). The growing demand for transport links leads to improvements in the infrastructures and the quality of the roads. This scenario targets a wider spectrum of players, because the increased jobs opportunities allow new actors to enter the economic scene. This situation leads to an improvement in the economic standard of the region but on the other hand increases the pressure on the surrounding wildlife.

The development of the area is helped significantly by different economic investors for building small industrial parks and offices around the NP. Financial support from the state and the EU to different types of tourism is accessible, but it is mainly for associations focused on tourism, not to individual stakeholders. Conflict and mistrust among stakeholders are latent, which leads to some uncooperative stakeholder behaviour. Thus projects requiring creation of associations cannot be realized. On the other hand, those projects that do not require coalitions or associations (such as information centres, reconstruction and upgrading of existing tourist facilities) will be accomplished. International NGOs (focused on minorities and women's issues) propose various projects for education and employment of local Romany community members. All these factors result in the creation of new jobs (mostly for unskilled labour) and increased income for municipalities (and a few private landowners) from selling or renting their land to investors, and increased living standards for the whole region. Economic and social diversification (increased outward migration of labour force and the possibility for incorporating minority groups into the community life) give rise to an economic and social revival of the region.

In this scenario, a zoning system is not a priority for all local stakeholders. While the legislative declaration of a zoning system is an ongoing process, it focuses on the creation of an unfragmented core zone of 10,000 hectares where extractive use is not permitted. The state authorizes some funds for compensation of landowners to change the 3rd or 4th protection levels of their land to 5th level of protection, however the amount is not sufficient to compensate all affected landowners. There are continuing efforts of the state to provide more funds for the compensation.

Local stakeholders (entrepreneurs and municipalities) have different views of how the region should develop. Only a few municipalities are interested in being involved in tourism; they are especially those municipalities situated close to the park or those not owning the land. They form some temporal informal associations in order to gain funds from the EU for tourism. The others (owning the land or situated further from the park) are more focused on renting their land to investors for building small industrial parks. They are more individualistic and establishing an association is not a priority. There are a few entrepreneurs offering different tourist services (B&Bs, small hotels with sports and recreational facilities, etc.). Some, who previously focused on offering accommodation only, will close their businesses due to better financial prospects in other

sectors. There are some tensions between the Park Administration and municipalities situated in the close proximity of the park due to their interest in selling their land for the building of small industrial parks. The Park Administration focuses on informational and some educational activities (information panels) inside the park.

Although tourism is no longer the main source of economic benefits in the area, a few new tourist facilities are built and the quality of several existing ones is also upgraded. Visitors can enjoy better services and better public transport connections, better roads and increased attractiveness of the area inside the park. This increases the overall number of short-staying visitors, however due to the higher traffic volumes and related problems in the area close to the NP, the number of long-staying tourists decreases.

Unemployment is down and the standard of living has improved for most people in the region. However, the region also experiences increased pressures on land use and resources, more traffic and problems with air pollution, dust, noise, etc. In order to keep the roads open throughout the year, salt is used increasingly on roads during winter, which causes water pollution.

Scenarios development		
Links between entities	Entities in the park area	
External forces on social actors	Processes and Actors (including their roles)	
External forces on social actors	Major changes in policy, demand for tourist services: driving force=employment, enhanced demand for traffic	
External forces on resources and infrastructures	Type of development: (construction of new roads, new infrastructure): Diversification based on light industry and partially tourism, improving infrastructures and road quality	
Link between resource users and public infrastructures (impact of rules (SC), type of development (PC) on users)	Benefiting, employment: creation of new jobs (mostly for unskilled labour), increased profits for municipalities (and a few private landowners), increased living standard for whole region	
	Public infrastructure providers	The state (its financial and legislative role): state financial support is accessible to associations that focus on different types of tourism, state has authorized some funds for compensations, legislative declaration of zoning system is an ongoing process, continuing effort of the state to provide more funds for the compensations
		Associations of municipalities (Type of organizations, informal/commercial based): temporal informal associations formed
		Park Administration (involvement in associations, in education etc.): no interaction with municipalities, offers education only in the form of information panels in the park
Link between public infrastructure providers and public infrastructures	Funding and its flow, building infrastructure=over/under capitalization, maintenance, monitoring, enforcing: Non-local and EU, partly returned to infrastructure development of the whole region, improving quality of existing services	
Link between users and public infrastructure providers	Co-operation: Co-operation and trust among stakeholders is not improving	
	Resource users	Type of investors (big/small, foreign/local, specialization): Different economic investors in small industrial parks
		Landowners (their willingness to exchange their land): only a few landowners agreed to integrate their land into core zone
		Entrepreneurs (type of, what services they offer): few independent entrepreneurs are involved in tourism
		Tourists using services and facilities (type of tourists, what activities they prefer, and length of their stay): increased overall number of short-staying visitors enjoying attractiveness of the area inside the park, decreasing number of long-staying tourists
	Public infrastructures	Social capital
		Physical capital
	New strategies & rules (Compensations, Zoning system, new law, acts): zoning system is an outgoing process, some compensations, no new law or acts	
	Engineered works (paths, etc.): no new hiking, cycle or cross-country paths	
	Resources	
	Forest, National Park, and surrounding area (state of the environment): Increased pressure on land use, increased demand for traffic	
Link between public infrastructures and resources	PC: Impact of development on the area (short distance, long distance): medium distance from the park SC: close areas, reopen areas no areas are reopened for tourists	

Scenario 3 “Appreciation of nature”

In this scenario, the Slovenský Raj National Park succeeds in joining the European Protected Area Network of Parks (PAN Parks). PAN aims to improve wilderness management and to balance tourism and conservation. According to the PAN Park principles, co-operation between local actors is crucial. Pressure from NGOs and the park administration mounts on the government to focus on nature protection issues. Inside the park area, nature protection is thus central and tourism based on sustainability principles is supported. However, there is a need for some restrictions in certain sensitive areas. In this scenario, the region targets mostly visitors who prefer nature-based tourism.

The development of the area in the close proximity to the park is partly based on the region's own funds, but financial support to sustainable tourism from the PAN Parks Foundation, the state and the EU is accessible and has increased significantly. Thus, new projects in nature-based tourism (such as educational and visitor centres, watchtower construction) are proposed and due to obtain funding. Local stakeholders are able to improve or build new facilities outside the park. They become part of the decision-making process by creating a stakeholders' executive group and develop a stronger co-operation with a protected area authority and formally confirm their support to the protection goals of the national park. All these factors result in new jobs and increased profits for small local entrepreneurs.

The State accomplishes a legislative declaration of a zoning system in order to create an unfragmented core zone where no extractive use¹⁴ is permitted and where the only management interventions are those aimed at maintaining or restoring natural ecological processes. An area of 10,000 hectares has been declared as the core zone (requirement of PAN Parks) of so-called “restoration management”, where disturbed ecosystems are gradually left to natural succession. It has been necessary to provide both exchanges of the land in the new core zone for land outside the park, and authorize funds for compensations of pecuniary injury (restriction of use) for landowners to move from the 3rd or 4th protection levels of their land to the 5th level of protection. Some landowners agreed to exchange their forestland in the park (2,000 ha) for land outside the park, others (in part motivated by the allocated funds for compensations) agreed to integrate their land (1,000 ha) into the core zone.

PAN Park partners legally have to meet minimum quality requirements on service and environmental performance and are committed to the goals of the NP and the PAN Parks Organisation. They actively co-operate with other stakeholders. If partners decide not to follow required principles, they face the threat of losing the PAN Parks trademark and will be

¹⁴ The following human activities are not accepted in the core/wilderness zone: hunting / culling, mining, logging, grazing, grass cutting, road and building construction, large-scale cultural and sports events, etc. These activities are not accepted even if they are based on traditional use.

considered environmentally unfriendly businesses and thus lose the PAN Park label and consequently some of their visitors.

According to the PAN Park criteria, tourist services within the area are focused on educational and learning activities. No new tourist resorts or centres can be built, no new hiking, cycle or cross-country paths are opened but development is focused on improving the quality of existing paths. However, new ladders, chains and side-steps are built in order to prevent the trampling of biotopes and soil erosion. Visitors enjoy top wilderness experience and also can take part in high-quality activities based on the appreciation of nature. This is supported by offering better visitor information, including information on PAN Parks, education programmes and guide services. Visitors have to follow stricter park rules guaranteeing that their visit will not damage nature. In some fragile and sensitive spots the number of visitors is regulated and set by limits (regulation by numbers, time tickets, discounts in off-peak hours and seasons), tourist flows are directed to less fragile ecosystems and some areas can even be closed for visitors.

Such balance of tourism and conservation by creating a core zone reduces the risk of exceeding the carrying capacity of the area and reduces the influence of tourism on the natural environment.

Scenarios development		
Links between entities	Entities in the park area	
Processes and Actors (including their roles)		
External forces on social actors		Major changes in policy, demand for tourist services: rising NGOs' and park administration' pressure on government to focus on nature protection issues
External forces on resources and infrastructures		Type of development: (construction of new roads, new infrastructures): Offer idea of tourism based on appreciation of nature
Link between resource users and public infrastructures (impact of rules (SC), type of development (PC) on users)		Benefiting, employment: new jobs and increased profit for local small entrepreneurs, increased recognition of the NP
	Public infrastructure providers	<p>The state (its financial and legislative role): State support sustainable tourism and nature protection, accomplished legislative declaration of zoning system, authorized finances for compensations, provide exchange of the land</p> <p>Associations of municipalities (Type of organizations, informal/commercial based): formal stakeholders' executive group within the park is created</p> <p>Park Administration (involvement in associations, in education etc.): partner of stakeholders' executive group, involved in educational activities</p>
Link between public infrastructure providers and public infrastructures		Funding and its flow, building infrastructure=over/under capitalization, maintenance, monitoring, enforcing: Partly based on own resources, PAN parks foundation, and EU, returned to the park for nature protection, improving quality of existing services
Link between users and public infrastructure providers		Co-operation: Co-operation and trust between stakeholders is improving, stronger co-operation stakeholders with protected area authority
	Resource users	<p>Type of investors (big/small, foreign/local, specialization): No big, private foreign investors</p> <p>Landowners (their willingness to exchange their land): landowners agreed to exchange their land, agreed to integrate they land to core zone</p> <p>Entrepreneurs (type of, what services they offer): mostly small, have to meet minimum quality requirements on service and environmental performance, are committed to the goals of the NP and the PAN Parks Organisation</p> <p>Tourists using services and facilities (type of tourists, what activities they prefer, and length of their stay): Top wilderness experience, enjoy activities based on the appreciation of nature</p>
	Public infrastructures	<p>Social capital</p> <p>New strategies & rules (Compensations, Zoning system, new law, acts): zoning system core zone 10 000ha, compensations, Management plan with a long-term conservation strategy, visitor management plan, sustainable tourism development strategy, executive PanPark organization, stricter rules tourist and for partners of executive PanPark organization</p> <p>Physical capital</p> <p>Engineered works (paths, etc.): new ladders, chains and side-steps</p>
	Resources	Forest, National Park, and surrounding area (state of the environment): The carrying capacity of the area is not exceeded
Link between public infrastructures and resources		PC: Impact of development on the area (short distance, long distance): limited to short distance from the park SC close areas, reopen areas: some areas can be closed for visitors

Scenario 4 “Responsibility for nature and community”

In this scenario, there is an increasing tendency among the local population and local associations to focus on the development of tourism. However, tourism is not treated purely as an economic activity but also as a tool for solving social and ecological problems. Tourist activities are based on co-operation of local interest groups who control, organize and co-ordinate tourism in the region, but they do not restrict the number of tourists. This scenario emphasises the development of tourism within the park area and in a wider range of surrounding municipalities. It targets a wider spectrum of visitors, who prefer quality but not necessarily luxury services.

The development of the area is based on the region's own funds; the State provides no financial support to tourism and nature protection. Created benefits are returned to and invested in the region in tourism and rural development. For small projects local citizens become the investors in the region. Although foreign investors participate in the development of some big projects, they have to comply with local rules and conditions and pay environmental taxes into a special fund supporting rural development and infrastructure improvements. All these factors result in the development of services and infrastructures in the surrounding municipalities, creation of new jobs and increased limelight for the area.

In this scenario the State decides for a legislative declaration of a zoning system. However, it has not been possible to create an unfragmented core zone of 10,000 hectares where no extractive use is permitted. While the state offered the possibility to exchange land in the proposed core zone for land outside the park, it has not authorized funds for compensation of landowners to change the 3rd or 4th protection levels of their land to the 5th level. Even though some landowners have agreed to exchange their land in the park (proposed for core zone) for land outside the park, the area of exchanged land is sufficient for the creation of a core zone of 7,000 hectares only.

A formal local economic association created by local stakeholders (municipalities, park administration, landowners) for supporting tourism is established and thus stronger co-operation with the protected area authority is developed. Membership does not depend on the assets, location or size of the particular municipalities. Existing local entrepreneurs in tourism (B&B owners etc.) have established one commercial company (partnership) inside the park with specified rules and fixed membership fees. The goal of the company is to promote and advertise tourism in the area and to gain funds (in the form of EU grants) for improving the tourist facilities.

Development in the area is focused on offering facilities that serve both tourists and local residents, such as quality accommodation, shops, dry-cleaners, bakeries, etc. in the surrounding municipalities. Although no new tourist paths are opened in the core zone of the park, paths for horseback riding, cycling and cross-country skiing are opened in the buffer zone. Development is mostly focused on improving the quality of existing services

and facilities (building of new ladders, chains and side-steps in order to prevent the trampling of biotopes and soil erosion, improving entrance point services); however, a few new tourist resorts are built on the edge of the buffer zone. Visitors enjoy natural experience inside the park and better services outside the park. This is supported by offering better visitor information, including information about tourist services in the surrounding area. The negative impact of tourism is kept under control only in the most sensitive area of the park due to dispersing and redirecting the tourist flow to less sensitive areas; some of those less sensitive areas are reopened for tourists.

Scenarios development		
Links between entities	Entities in the park area	
Processes and Actors (including their roles)		
External forces on social actors		Major changes in policy, demand for tourist services: increasing tension from local population to put the same emphasis on nature protection and on development of surrounding municipalities (infrastructure and services for residents)
External forces on resources and infrastructures		Type of development: (construction of new roads, new infrastructure): based mostly on (sustainable) tourism, development of services and infrastructure in surrounding municipalities
Link between resource users and public infrastructures (impact of rules (SC), type of development (PC) on users)		Benefiting, employment: creation of new jobs, local stakeholders benefit, increased development and recognition of the surrounding area
	Public infrastructure providers	<p>The state (its financial and legislative role): State do not provide financial support for tourism, accomplished legislative declaration of zoning system, do not authorized finances for compensations, provide exchange of the land</p> <p>Associations of municipalities (Type of organizations, informal/commercial based): formal local economic association is created</p> <p>Park Administration (involvement in associations, in education etc.): partner of local economic association, partly educational activities</p>
Link between public infrastructure providers and public infrastructures		Funding and its flow, building infrastructure=over/under capitalization, maintenance, monitoring, enforcing: Own resources, profit returned to area for tourism activities and rural development, improving quality of existing services
Link between users and public infrastructure providers		Co-operation: Co-operation and trust among stakeholders is improving, stronger co-operation stakeholders with protected area authority
	Resource users	<p>Type of investors (big/small, foreign/local, specialization): Small local investments in tourism sector, possibility of big foreign investor in tourism sector</p> <p>Landowners (their willingness to exchange their land): some landowners agreed to exchange their land</p> <p>Entrepreneurs (type of, what services they offer): entrepreneurs in tourism (B&B owners etc.) will establish just one commercial company (partnership) within the area of the park with strictly established and specified rules with set fees</p> <p>Tourists (type of tourists, what activities they prefer, and length of their stay): visitors preferred quality but not necessary luxury or high standard of services, natural experience inside the park</p>
	Public infrastructures	<p>Social capital</p> <p>New strategies & rules (Compensations, Zoning system, new law, acts): zoning system core zone 6000ha, Management plan, visitor management plan, special fund using for rural development, stricter rules for partnership</p> <p>Physical capital</p> <p>Engineered works (paths, etc.): new ladders, chains and side-steps</p>
	Resources	Forest, National Park, and surrounding area (state of the environment): The most sensitive area is strictly protected
Link between public infrastructures and resources		<p>PC: Impact of development on the area (short distance, wider distance): medium distance from the park</p> <p>SC: close areas, reopen areas: some less sensitive areas are reopened for tourists</p>

Scenario 5 “Traditions and local culture”

In this scenario, there is an increased pressure from the EC to focus on integrated rural development and multifunctional agriculture. Thus, the economic development of the Slovenský Raj National Park area is such that tourism in the park does not play the most important role in the economy of the region. Tourist activities are concentrated mostly outside the park area, in the surrounding region of Middle Spis (Stredný Spiš) and are characterized as rural. They are based on traditional activities and modes of production and utilization of cultural resources such as cultural heritage, local architecture, customs and traditions. Several actors are involved in the tourism development such as tourism associations and individual entrepreneurs in the whole Middle Spis region. Increased demand for transport connections in the region leads to improved road quality. The development of rural activities in the surrounding region contributes to the revitalization of abandoned agricultural land.

The development of the area is partly based on own resources, but state and EU financial support to rural tourism is accessible. Thus, development is dispersed further from the park area where landscape conditions are more suitable for rural tourism and where the nature protection laws are not so strict. Due to the available funding aid for rural tourism, local citizens (e.g. farmers) have become small-scale investors in the region's tourism sector and foreign investors come to the region mostly for other economic activities. All these factors result in the development of services and infrastructures in the municipalities situated not only in the close proximity of the park. The recognition of the surrounding region is increased.

In this scenario, the zoning system is not a priority for local stakeholders, due to the decreasing numbers of visitors in the less sensitive areas of the park. While the legislative declaration of a zoning system is an ongoing process, it focuses on the creation of an unfragmented core zone of 8,000 hectares where extractive use is not permitted. The state authorizes some funds for compensation of landowners to change the 3rd or 4th protection levels of their land to 5th level of protection; however, the amount is not sufficient to compensate all affected landowners. Moreover, the state offers the possibility to exchange land in the proposed core zone for land outside the park. Negotiations with landowners to exchange their land in the park are ongoing.

Co-operation between municipalities has increased due to a growing need for connecting various cultural heritage sites within the region. However, local entrepreneurs are not united and thus have created several associations each of which aims to offer tourist services in a different part of the region and highlighting different aspects of the local culture. Many entrepreneurs who offer services in rural tourism gain funds from the EU for improving their facilities and to promote and advertise tourism in the area. The park administration is not involved in any educational or cultural activities, which are organized by the municipalities. The park administration focuses only on research activities in the park.

Tourism within the region focuses on traditional activities (e.g., accommodation on farms with the possibility to work on the farm as a tourist attraction, musical events, etc.). Directly in the park no new tourist resorts are built, no new hiking, cycle or cross-country paths are opened. Development is mostly focused on improving the services in the surrounding municipalities such as shops, cultural sights,

museums or souvenir shops and promoting local culture and crafts. Visitors experience local rural cultures and traditions. This is supported by offering better visitor information, including information about the historical and cultural heritage of the surrounding municipalities, transport connections between municipalities, services in and outside the park; extended opening hours of sites and museums; organizing of festivals and traditional markets or fairs and education programmes.

This strategy leads to the improvement of the standards of living for part of the population and increased recognition of the region. Also, the negative impacts of tourism on the sensitive areas of the park are reduced by dispersing the tourist activities in the surrounding rural areas.

Scenarios development		
Links between entities	Entities in the park area	
Processes and Actors (including their roles)		
External forces on social actors		Major changes in policy, demand for tourist services: increased pressure from EU to focus on rural development and multifunctional agriculture
External forces on resources and infrastructures		Type of development (construction of new roads, new infrastructure): based on traditional activities and modes of production and utilization of cultural resources such as cultural heritage, local architecture, customs and traditions, development of services and infrastructure
Link between resource users and public infrastructures (impact of rules (SC), type of development (PC) on users)		Benefiting, employment: Entrepreneurs offering rural tourism, Recognition of surrounding region
	Public infrastructure providers	<p>The state (its financial and legislative role): financial support for rural tourism from state is accessible, State has not authorized sufficient finances for compensations, provide exchange of the land</p> <p>Associations of municipalities (Type of organizations, informal/commercial based): only informal association for specific projects are formed</p> <p>Park Administration (involvement in associations, in education etc.): no connection with municipalities</p>
Link between public infrastructure providers and public infrastructures		Funding and its flow, building infrastructure=over/under capitalization, maintenance, monitoring, enforcing: Partly based on own resources, and from EU, returned to the region for rural development
Link between users and public infrastructure providers		Co-operation: Co-operation among municipalities is increased, local entrepreneurs are not united
	Resource users	<p>Type of investors (big/small, foreign/local, specialization): Small local investors in rural tourism, foreign investors for others economic activities</p> <p>Landowners (their willingness to exchange their land): some landowners agreed to exchange their land</p> <p>Entrepreneurs (type of, what services they offer): entrepreneurs offer services in rural tourism gain financial support from EU budget</p> <p>Tourists (type of tourists, what activities they prefer, and length of their stay): visitors preferred accommodation on the farms, with the possibility to work in the farm as tourist attraction</p>
	Public infrastructures	<p>Social capital</p> <p>New strategies & rules (Compensations, Zoning system, new law, acts): zoning system is in ongoing process, no compensations</p> <p>Physical capital</p> <p>Engineered works (paths, etc.): no new hiking, cycle or cross-country paths</p>
	Resources	Forest, National Park, and surrounding area (state of the environment): Revitalization of abandoned agricultural land in surrounding region
Link between public infrastructures and resources		<p>PC: Impact of development on the area (short distance, long distance): wider distance from the park</p> <p>SC close areas, reopen areas: no areas are reopened for tourists</p>